



SHEEP SUSTAINABILITY FRAMEWORK

Annual Report 2023

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About this Report

The Sheep Sustainability Framework was launched in 2021. This is its second Annual Report. This document reports data on industry progress against key sustainability priorities across the Australian sheep industry's domestic value chain.



About the Framework

Role

The role of the Sheep Sustainability Framework (SSF) is to monitor, measure, and report industry performance against sustainability priorities.

Data and trends gathered through the SSF will identify opportunities on-farm, in transport, processing, and at the customer interface where practices can be improved by both the industry and individuals.

In doing so, the SSF can be used by industry to help protect and grow access to investment, finance, customers, and markets by providing credible evidence of performance and improvement. Further, individual enterprises may use the Framework to understand the industry's material issues and consider these in their forward planning.

Leadership and support

The Sheep Sustainability Framework is owned, designed, and developed by the Australian sheepmeat and wool industry through the peak national policy and advocacy bodies Sheep Producers Australia (SPA) and WoolProducers Australia (WPA).

The SSF is led by an independent Sustainability Steering Group (SSG).

The sheep industry Research and Development Corporations (RDCs), Australian Wool Innovation (AWI) and Meat & Livestock Australia (MLA) provide resources in support of the SSF.

Consultation

Consultation with stakeholders is instrumental in ensuring the SSF is robust, credible and works for our industry. Stakeholders are those who can influence the decisions our industry makes or are impacted by them, and encompass industry, as well as customers, retailers, special interest groups, government, and investors.

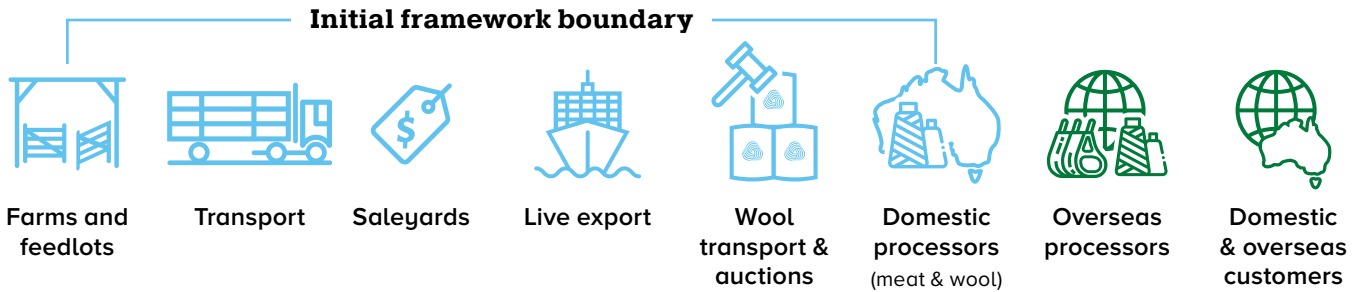
Who benefits from the Sheep Sustainability Framework?

The SSF supports sustainable sheep and wool production in Australia, and continuous improvement. When production is sustainable:

- People, businesses, animals, and the environment all benefit
- Customers will have access to products they trust
- Investors will face fewer risks and the potential for higher returns
- Consumers will know the sheepmeat and wool industry is a responsible source of food and fibre
- Sheepmeat and wool businesses will have access to the resources, customers, investment, and markets they need to grow and prosper into the future

Reporting scope

The SSF reporting scope is the Australian sheep industry’s domestic value chain. This includes farms, saleyards, transport, processing, and live export. It is intended that the SSF scope will extend to international processors and retailers from FY2024 and beyond.



The SSF aims to:

- Promote industry transparency with trading partners, customers, and the community
- Better inform investment in improvement in focus areas
- Protect and grow access to financial capital
- Foster constructive relationships with external stakeholders to work collaboratively with the industry.

The SSF does not:

- Establish or endorse measurement systems at an individual business level
- Provide an accreditation or certification system
- Endorse prescriptive management practices
- Create additional work for individual businesses.



Winter at Bukalong Farming, Bombala, New South Wales. Taken from SustainaWOOL Facebook page

SSF board chair's letter



Lucinda Corrigan

**INDEPENDENT CHAIR
SSF BOARD
DIRECTOR,**
Rennylea Pastoral Company

I am proud to present the second Annual Report since the launch of the SSF in April 2021.

It is very encouraging to see the maturing approach by all parts of the sheepmeat and wool value chains to meet the need for our industries to be more transparent on the issues of importance to those we provide with food and fibre.

In late 2022, the SSF Board were delighted to welcome two new Steering Group members. The 2023 Steering Group brings experience and insights from production, red meat processing, wool processing, finance, agribusiness strategy and retail. This valuable blend of skills has ensured that the SSF leadership is alive to the opportunities and challenges around stakeholder engagement, data gathering and reporting, and continuous improvement of the SSF across the value chain.

A key purpose of the SSF is to bring transparency to the issues that have been identified as material to our industry. The SSF Annual Report demonstrates our industry's sustainable practices and

identifies areas for improvement. This allows the industry and its stakeholders to recognise opportunities more clearly and better understand the areas where advancement is required.

We have gathered data from a wide range of sources to report against our material indicators. Where it is not available, we commissioned a producer survey to fill in some of these gaps. We recognise that some metrics remain elusive, such as robust data for reporting our industries' impacts on biodiversity in the farmed landscape. We look to address these gaps as new tools and data gathering become available.

I would like to thank Scott Williams for his leadership of the Steering Group and each member for their contributions to this important work. The enthusiasm and commitment they bring will secure the sustainable future of the iconic Australian sheepmeat and wool industry.

Lucinda Corrigan

The Sheep Sustainability Framework Board



Bonnie Skinner

CEO,
Sheep Producers Australia



Jo Hall

CEO,
WoolProducers Australia



Helen Carrigan

DIRECTOR,
WoolProducers Australia



Steve Harrison

PRESIDENT,
WoolProducers Australia



Jamie Heinrich

DIRECTOR,
Sheep Producers Australia



Ben Thomas

DIRECTOR,
Sheep Producers Australia

SSF steering group chair's letter



Dr Scott Williams

CHAIR,
SSF Steering Group
DIRECTOR,
Forest Hill Consulting

It seems a short time ago that we were launching the first Annual Report of the SSF, and here we are publishing the second. The intervening period has been very busy for all involved.

In October, we hosted our first Consultative Committee meeting and in March, our first Industry Forum. The Consultative Committee is a crucial element of our engagement. It brings together a wide range of stakeholders from throughout the industry value chain and beyond, including government and non-government organisations. It provides a valuable forum through which we can have a conversation with our customers and community. The Industry Forum is likewise important, allowing the industry itself to discuss the sustainability issues that affect us and are affected by us.

Both meetings reminded us that the SSF is simply a small part of a global series of standards, frameworks and schemes operating in sustainability or environment, social and governance (ESG) reporting. We are continuing to identify how we best articulate these – especially the

Global Reporting Initiative Sustainability Reporting Standards – to maximise the impact of the SSF for the Australian sheep industry.

Getting down to the detail, this second Annual Report provides us with second or third data points for some metrics, whilst for some others it provides the baseline (starting) value. The latter includes results from the Environmental Performance Review of sheepmeat processors and the industry demographic data mined from the 2021 Census. We are steadily increasing the number of priorities for which we have metrics, and the number of metrics for which we have data.

My thanks as always to our hardworking secretariat, Sarah Hyland, and her counterpart at AWI, Bridget Peachey. I also thank the capable members of the Steering Group for their efforts, and the Board to whom we report, for their support.

Dr Scott Williams

Sustainability Steering Group



Julian Collins

ABMT



Belinda Dexter

Australian Lamb Company



Ed Dunn

MH Premium



Jane Kellock

Kellock Farming



Lachlan Monsborough

Rabobank



Anna Playfair-Hannay

Woolworths

The Framework on a page

Vision

Sustainably producing the world's best sheepmeat and wool, now and into the future.

Definition

Sustainable sheepmeat and wool production means producing sheepmeat and wool by current and future generations in an ethical and environmentally, socially, and financially responsible manner.

Principles

The principles that guide implementation and improvement of the SSF are

1. Transparency
2. Accountability
3. Inclusivity
4. Credibility
5. Practicality
6. Relevance

The SSF structure comprises

4





Themes

9

Focus areas

21

Priorities

THEME	FOCUS AREA	PRIORITY
Caring for our sheep		
	1. Animal care and handling	1.1 Reduce, refine and replace painful husbandry practices
		1.2 Implement best practice sheep management
		1.3 Ensure humane processing and on-farm euthanasia
	2. Animal health	2.1 Prevent and manage disease
		Enhancing the environment and climate
	3. Environment	3.1 Improve natural resource management
		3.2 Responsible environmental practices
		3.3 Encourage biodiversity
	4. Climate change	4.1 Reduce net greenhouse gas emissions
		4.2 Adapt to a changing climate, including extreme weather events
		Looking after our people, our customers and the community
	5. Health and safety	5.1 Improve industry safety culture
		5.2 Improve our people's health
	6. Capacity building	6.1 Support and grow our workforce
		6.2 Encourage workforce diversity
	7. Contribution to community	7.1 Enhance community trust
		7.2 Deliver products that customers demand
		Ensuring a financially resilient industry
	8. Profitability, productivity and investment	8.1 Maintain or increase industry profitability
		8.2 Maintain or increase contribution to the Australian economy
		8.3 Increase productivity
		8.4 Encourage innovation
	9. Market access	9.1 Ensure positive market positioning and access
9.2 Guarantee product integrity and safety		

Second year highlights

The Sheep Sustainability Framework (SSF) has achieved a significant amount since the first Annual Report was released in July 2022. Operating in line with the *SSF Strategic Plan* for FY2022-FY2024, the SSF has delivered a supplementary data report, administered ongoing data collection projects, and continued to communicate, collaborate, and develop relationships with valued internal and external stakeholders.

The *SSF Strategic Plan* FY2022-FY2024

Developed by the Board and Steering Group, the aim of the *SSF Strategic Plan* is to embed the SSF into the sheepmeat and wool industry, so it becomes a living, working industry instrument where its use is part of 'business as usual'.

Three strategies, each with supporting activities, have been identified to move the SSF forward and propel it towards its objectives.



Stakeholder engagement

MODUS OPERANDI

Our promotion and consultation activities must make impact and generate insights.

SUPPORTING ACTIVITIES

- Stakeholder engagement strategy - connection and consultation
- Communication strategy - raising awareness, understanding and value



Data collection and reporting

MODUS OPERANDI

Our data must be as defensible as practicable and easily accessible to all.

SUPPORTING ACTIVITIES

- Protocols for data collection
- Indicator reporting plan
- Visual insights reporting function



Continuous improvement

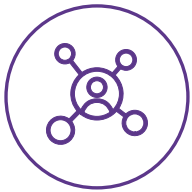
MODUS OPERANDI

We actively appraise and improve the framework and ourselves.

We are curious and conversant with current and emerging material topics.

SUPPORTING ACTIVITIES

- SSF review
- Keeping up with contemporary thinking
- Framework fellowship



Stakeholder engagement

To maximise its impact, the SSF must connect and consult appropriately with the breadth of sheepmeat and wool supply chain stakeholders who influence, drive, and implement industry actions.

SSF communications aim to raise awareness, improve understanding, and promote the activity and value of the SSF using effective messaging via optimum channels.



FIRST CONSULTATIVE COMMITTEE MEETING

The SSF held its first Consultative Committee Meeting in October 2022 with 55 representatives from across industry and the Australian sheepmeat and wool value chains meeting for a full day in Melbourne. The outputs of key data-gathering projects were presented, along with an opportunity to contemplate and discuss impending global and domestic requirements for sustainability reporting.



FIRST INDUSTRY FORUM

The SSF held its first Industry Forum in March 2023 in Sydney. Fifty internal stakeholders from the Australian sheepmeat and wool industry reviewed key sheep industry topics, their impact on the environment and the risks and opportunities these topics presented to industry. The outputs will inform the next sheep industry materiality review scheduled for FY2024.



KEY COMMUNICATIONS ACTIVITIES

The SSF has established *Newes and Wether*, the quarterly e-newsletter bringing subscribers up to date with SSF activities and sheep industry sustainability issues. These activities are further supported through industry media and digital platforms.

For International Women’s Day on 8 March 2023, the SSF created a social media post demonstrating how the SSF embraces equity. Further, the SSF hashtag *#chopsandfrocks* appears to be gaining traction among stakeholders and is helping to build awareness of the SSF.



Data collection and reporting

The purpose of the Sheep Sustainability Framework is to monitor, measure, and report industry performance against sustainability priorities. This requires contemporaneous, meaningful, and high-quality information.

Three data-gathering projects have delivered new baseline data for a total of 23 SSF metrics.



ESTABLISHMENT OF THE NATIONAL PRODUCER SURVEY

Undertaken by AWI and MLA in Q3-Q4 of FY2022, and in partnership with the Australian Beef Sustainability Framework (ABSF), the National Producer Survey was initiated to capture on-farm animal husbandry and environmental practice information from a nationally representative sample of nearly 3,000 beef, sheep, and wool producers. The key results were released in the SSF *On-Farm Insights Report* in October 2022.

The survey results provide high-quality baseline data for the SSF. The insights demonstrate sound practices and identify areas for improvement.

In addition, the impact of industry initiatives around animal husbandry, pasture management and carbon sequestration activities can be measured.

This streamlined approach will be repeated every two years to track industry on-farm progress in a sound, consistent and comparable way.



Data collection and reporting



SHEEPMEAT PROCESSING ENVIRONMENTAL PERFORMANCE REVIEW

The Australian Meat Processing Corporation engaged CSIRO to perform the 2022 *Environmental Performance Review* (EPR) for the red meat processing industry. The EPR is the flagship sustainability report for the Australian red meat processing industry, continuing a series of sectoral environmental performance reviews since 1998.

For the first time, this EPR captures and reports species-specific data, enabling the SSF to report sheep processing baseline data. Like the National Producer Survey, the EPR will be conducted biennially.



2021 CENSUS DATA MINING

The SSF accessed the Australian Bureau of Statistics Agricultural Statistics Program from the 2021 Census to obtain sheep industry-specific demographic data. This has allowed the SSF to accurately report the age, gender, education, and cultural diversity of the on-farm workforce across the sheepmeat and wool industry.



Continuous improvement

Continuous improvement for the SSF is defined as the practice of regular re-examination of the Framework to ensure its focus and administration remain relevant. This includes ensuring the SSF Board and Steering Group are conversant with current and emerging material topics.



CARBON TRAINING

The SSF Board and Steering Group attended the Carbon Neutral Agriculture Training course delivered by Melbourne University. The course covered emissions sources and sinks, the concepts of carbon neutrality and climate neutrality, methane and nitrous oxide emission reduction, and carbon storage options.



CONNECTING WITH INDUSTRY-ADJACENT FRAMEWORKS

The SSF has been active in establishing relationships and sharing insights with other industry frameworks.

The SSF Steering Group held its first joint meeting with the Australian Beef Sustainability Framework (ABSF) Steering Group in August 2022. The Steering Groups aim to meet annually to collaborate on common topics and provide help and advice where needed.

The Australian Agricultural Sustainability Framework (AASF) is coordinated by the National Farmers' Federation and aims to provide a central source of information about Australian agricultural sustainability. The SSF has contributed to the consultation phases of the AASF and ensures representative participation in the Community of Practice (COP) online forums and face-to-face exchanges.



Continuous improvement



ALIGNMENT WITH GLOBAL REPORTING INITIATIVE SECTOR STANDARDS

The Global Reporting Initiative (GRI) Sustainability Reporting Standards (GRI Standards) enable an organisation to report information about its most significant impacts on the economy, environment, and people, including impacts on their human rights, and how it manages these impacts.

New GRI 13 sector standards for Agriculture, Aquaculture and Fishing were launched in July 2022. The SSF commissioned a review of the alignment of its topics with GRI 13 topics in early 2023.

Overall, there is good alignment between the material topics in the SSF and GRI 13.

However, some differences in scope, language, terminology, and topics have been identified. These will be reviewed and appropriately incorporated in the FY2024 report.



CODIFICATION OF DATA COLLECTION PROTOCOLS

The principle of reporting defensible data is a core part of the *SSF Strategic Plan*. Ensuring accurate data collection is essential to maintaining the integrity of reporting. Both the selection of appropriate data collection instruments and clearly delineated instructions for their correct use reduce the likelihood of errors occurring year to year.

The writing of data protocols for the collection of each SSF datum is in progress. These controlled and centralised procedures will be held securely within the Integrity Systems Company.



THE GREEN SHEEP INITIATIVE

The SSF ensures that its administration and operation also align with the demonstration and improvement of sustainable practices.

The Green Sheep initiative articulates an agreed set of working standards for the Sheep Sustainability Framework. The principles that underpin the standards will align with relevant Sustainable Development Goals (SDGs) and the notion of improvement.

For example, sourcing and serving Australian and locally produced food and beverages whenever possible, sourcing and serving sheepmeat dishes when appropriate, avoiding food waste, minimising the use of paper, and avoiding single-use materials and objects destined for landfill.

Our industry at a glance



Australia supplies

22.1% of the world's clean wool (*IWTO Market Information Edition 17*)

70% of the world's apparel wool (*Wool 2030*)

36% of the world's sheepmeat (*MLA Global sheepmeat industry and trade report 2022*)



Flock size

78.75 million

head of sheep

*MLA Industry Projections 2023
Australian Sheep*



Enterprises

31,500

agricultural enterprises
involved

Agriculture Victoria



Breeding ewes

41.6 million

breeding ewes on hand
72% Merino, 28% non-Merino

AWI Strategic Plan 2022 - 2025



Sheepmeat

A\$4.4 billion

gross value of sheepmeat
production forecast
for 2023/2024

ABARES Agricultural Outlook 2023

744,000 tonnes cwt

lamb and mutton produced

ABARES Agricultural Outlook 2023

341,256 tonnes swt

lamb and mutton exported in 2022

*MLA Industry Projections 2022
Australian Sheep*

45,500

people employed in the sheep
production and shearing sector

ABS 2021 Census



Wool

A\$3.5 billion

value of greasy wool forecast
for 2023/24

ABARES Agricultural Outlook 2023

340 million kg

greasy wool production
forecast for 2022/23

*Australian Wool Production Forecast
Report December 2022*

305 million kg

greasy wool export forecast
for 2022/23

Trust in Australian Wool 2021

200,000

people employed across
wool industry production,
farm services, research,
and marketing

Trust in Australian Wool 2021



Sheepmeat processing

22.6 million lambs

Processing forecast 2023

*MLA Industry Projections 2023
Australian Sheep*

7.6 million sheep

Processing forecast 2023

*MLA Industry Projections 2023
Australian Sheep*

25.1 kg

average national lamb carcass
weight forecast for 2023

*MLA Industry Projections 2023
Australian Sheep*

35,000

people employed by
red meat processors

AMPC Annual Report FY2022



Live export

524,908 sheep

exported from Australia
in 2022

A\$82 million

value of live sheep
export in 2022

*Source:
ABS March 2023*

Industry overview

Australia is a major producer and exporter of sheep products. We are the largest producer and exporter of premium quality fine wool and the largest exporter of sheepmeat. Globally, we are the second largest producer of lamb and mutton.

Our diverse landscape

Australia's sheep industry is an extensive pasture-based industry, with an average flock size of 2,000 sheep. Sheep are produced in a wide range of climates — from the arid and semi-arid parts of the inland region to the medium- to high-rainfall areas of New South Wales, Victoria, South Australia, Tasmania, Queensland, and southern Western Australia. Sheep are grazed on pastures year-round, with supplementary feeding occurring when there are pasture shortages.

Commitment to our industry

The nature of Australia's unique landscape brings numerous challenges to farming. These have led to innovative methods of production. Investment in research, development, and innovation through the levy scheme also ensures that our farming practices remain competitive and fit-for-purpose for Australia's unique production, geographic, and climatic environments.

The sheep industry has four research and development corporations (RDCs) — Australian Wool Innovation (AWI), Meat & Livestock Australia (MLA), LiveCorp and the Australian Meat Processor Corporation (AMPC). The RDCs invest producer levies and matched funds from the Australian Government in research, development, innovation, and marketing.

Sustainable sheep production

Sheep producers work to preserve, protect, and improve the natural resources and biodiversity on their farms and manage an estimated 65.8 million hectares of land. Sheep play an integral role in the ability of Australian farmers to sustainably manage the land. When managed well, sheep can regenerate the land on which they graze by: controlling and managing weed infestation; initiating the recruitment pastures; and encouraging an increase in soil biota diversity. By protecting, supporting, and encouraging biodiversity in the soil, vegetation, insect life, and fauna, sheep producers are ensuring that the farm ecosystem can thrive.

Wool is a 100% natural, renewable, and biodegradable fibre. Wool-producing sheep are shorn at least once a year, and sheep are often retained by the same producer over their lifetime, maintaining genetics and bloodlines over many generations.

Australia is the largest exporter of non-mulesed Merino wool in the world and the Australian sheep industry is committed to continuously improving its practices.

Windorah Farms, Wickiepin, Western Australia

Integrity systems

The sheep industry takes quality standards seriously, from establishing and anticipating customer specifications to the demonstrating and reporting of specific measures. Our sophisticated traceability systems guarantee the integrity of Australia's sheepmeat and wool products to our customers.

The National Livestock Identification System (NLIS) provides identification and lifetime traceability of sheep.

Livestock Production Assurance (LPA) is an on-farm assurance program covering food safety, animal welfare, traceability, and biosecurity. It provides evidence of livestock history and on-farm practices when transferring animals through the value chain.

This integrity system protects the disease-free status of Australian sheep and underpins the reputation of our products as clean, safe, and natural.

The Australian National Wool Declaration (NWD) and Classer's Specifications are the standardised mechanisms by which woolgrowers declare specific on-farm practices, wool quality, and traceability. They assist Australia's wool clip to meet evolving customer requirements. Australian

wool is bought and sold with an International Wool Textile Organisation (IWTO) test certificate that characterises all critical features of each bale of wool.

Increasingly, Australian wool producers have become involved in various sustainability certification schemes that provide more in-depth information regarding on-farm activities and attributes which are increasingly required by our customers. The **Responsible Wool Standard (RWS)**, **Authentico**, **ZQ**, and **SustainaWOOL** are examples of such certification schemes in use.

The *Australian Animal Welfare Standards and Guidelines for Sheep* apply to all those responsible for the care and management of sheep. They are based on current scientific knowledge, recommended industry practice, and community expectations.



Operating environment



Greenhouse gas emissions

The importance of the Paris Agreement's 1.5°C warming target was reiterated at the 2022 COP27 conference in Sharm El-Sheikh, Egypt.

Changes in several climatic impact drivers would be more widespread at 2°C compared with 1.5°C global warming.

Source: IPCC Sixth Assessment Report 2022



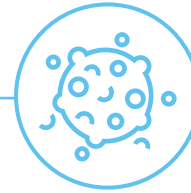
Climate risk

Australian land areas have warmed by around 1.4°C between approximately 1910 and 2020.

While heat extremes have increased, cold extremes have decreased, and these trends are predicted to continue.

The intensity, frequency, and duration of fire weather events are projected to increase throughout Australia.

Source: IPCC Sixth Assessment Report 2022



Disease risk

Global transmission of diseases such as foot and mouth disease remain a significant biosecurity threat to Australia's sheep industry.

An outbreak in Australia would have devastating consequences for our industry in animal health and welfare, lost production, restricted trade, and harmful impacts on communities.



Live sheep export policy

The Australian Government committed to phasing out live sheep exports as part of its 2022 election campaign.

The Minister for Agriculture, Fisheries and Forestry, Senator the Hon Murray Watt, has identified the phase out will not occur during this term of government.

Significant consultation will be undertaken across the Australian livestock export supply chain, as well as with animal welfare organisations, trading partners, and state and territory counterparts to ensure an orderly transition.

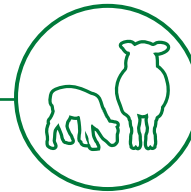


Shearing labour shortages

Shearing labour has been an issue of increasing concern with shortages exacerbated by international travel restrictions in response to the COVID-19 pandemic.

Traditionally, international shearing labour has come from countries with their own significant domestic sheep flocks, but these countries face similar problems of an aging workforce, as well as struggling to attract and retain shearers in the industry.

Fast-tracking visa workers from the Pacific Islands, then the United Kingdom and potentially India, is being investigated to ease the shearing sector's workforce shortage.



Feed sourcing

Seasonal and market conditions in recent years have increased producers' interest in strategically finishing lambs in on-farm feedlots and the use of containment yards to manage sheep and protect on-farm landscapes and the environment.

Further, feed sourcing is listed in the scope of multiple topics in GRI 13.

The SSF will need to evaluate how best to understand and quantify the impact of feed sourcing in the Australian context.



New free trade agreements (FTAs)

FTAs improve access to high-value markets and improve international competitiveness through reduced tariffs.

The United Kingdom parliament officially approved the Australia-United Kingdom Free Trade Agreement (FTA) in March 2023.

The Australia-UK FTA is a historic agreement, representing the UK's first new trade deal signed since Brexit.

FTAs expected to come into effect over the outlook period include the Australia-India Economic Cooperation and Trade Agreement (AI-ECTA) and the European Union FTA.

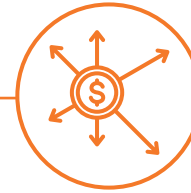


Activation of existing FTAs

Some existing Free Trade Agreements (FTAs) that contain provisions around sheepmeat came into effect earlier this year.

The China Australia FTA (CHAFTA) and the Korean FTA include an elimination of sheepmeat tariffs.

The Indonesia-Australia Comprehensive Economic Partnership Agreement (IA-CEPA) includes an elimination of frozen sheepmeat tariffs.



Diversification of export markets

International trade conditions are expected to improve alongside increased trade opportunities and export incomes for producers.

Emerging markets with an expanding middle-income consumer base, population growth, increased household wealth, and urbanisation will add to demand for sheepmeat products.

Consumers in emerging markets with increased spending capacity are shifting towards a high-protein diet and high-quality meats.



Advances in wool traceability

Traceability systems provide global consumers with a consistent and reliable framework for assessing the sustainability credentials of products.

According to the Australian Wool Exchange (AWEX), from July 2023 all new wool packs will contain eBale technology which allows traceability of every Australian wool bale from farm gate to retailer.

eBale technology will give Australian growers a competitive advantage in accessing premium markets and brands.



Boost in wool production

Above average rainfall over 2021-22 and early in the current year has resulted in significant improvements to pasture quality.

Improved pasture conditions reduce herd maintenance costs, namely, stockfeed.

As a result, sheep farmers have undertaken significant flock rebuilds in recent years.

The increase in the national sheep herd is projected to boost wool production in 2022-23.



Processing labour shortages

The availability of skilled and unskilled workers will be the major issue affecting the red meat industry in 2023.

Meat processors report stopping their least profitable activities as higher labour costs made them unviable.

The meat processing industry is becoming better at adding more value per worker.



Supply chain disruption

For many brands and retailers, the lockdowns and travel restrictions exposed the significant risks associated with sourcing and supply chain disruption.

Increased shipping costs and shipment delays mean brands are looking to diversify their manufacturing base, with renewed focus on 'nearshoring' options.

Ensuring these emerging manufacturing markets have supply chain access and the technical skills to use wool is critical to ensuring wool is the fibre of choice.



Comfort first

Casualisation in fashion has been a growing trend accelerated by COVID-19. This has led to a change in demand for traditional wool apparel, as consumers increasingly seek softness and comfort. This presents a significant growth opportunity for the Australian Merino wool industry.

With its natural stretch, next-to-skin softness, breathability and lightweight, low-creasing qualities, Australian Merino wool is the ideal fibre to meet the modern need to look presentable and feel comfortable.



Peak performance

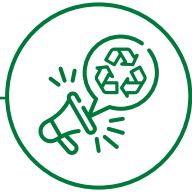
The vigorously growing global sports and outdoor apparel segment is projected to reach US\$24.93bn in 2023 and achieve an annual growth rate of 10.68 per cent (CAGR 2023-2027).

The Woolmark Company has developed a Merino wool team and crew uniform for the Luna Rossa Prada Pirelli sailing team, positioning Merino wool as the ultimate performance fibre.

This partnership for the America's Cup led to more than 15 other brands expressing interest in using wool in more sporting and outdoor wear, as an increasing number of brands look to reduce their reliance on fossil fuel-derived fibres.



Luna Rossa Prada Pirelli, 36th America's Cup team, Italy



Greenwashing

Greenwashing, whereby companies use ‘green PR’ or ‘green marketing’ to create a misleading perception that their products or services are environmentally friendly or socially responsible, is on the rise.

Greenwashing undermines positive efforts to address areas such as climate change, carbon emissions, biodiversity loss, unsustainable water use, waste generation, air pollution, and deforestation, by distorting the facts.

It can also misdirect environmentally conscious customers toward disingenuous products and organisations.



Regulator crackdown

Both the Australian Securities and Investments Commission (ASIC) and the Australian Competition and Consumer Commission (ACCC) are sharpening their focus on greenwashing.

The ACCC is stepping up its probe of companies’ environmental claims since the regulator found that 57% made misleading statements, ranging from exaggerating climate action to designing their own certification schemes.

ASIC commenced civil penalty proceedings in the Federal Court in March 2023 for alleged greenwashing conduct by Mercer Superannuation.

Source : ACCC ‘greenwashing’ internet sweep unearths widespread concerning claims, 02MAR2023.



EU green claims directive

As part of a global push to tackle greenwashing, the European Commission has proposed a new law preventing businesses from using misleading and unsubstantiated environmental claims.

The European Commission proposed the Green Claims Directive in March 2023. It aims to address greenwashing by establishing a clear and uniform regime for the regulation of environmental claims and labels across the European Union.



Material topics

In 2020, a materiality assessment was undertaken by independent experts, STR Consulting, to identify sustainability topics important to the continued success of the Australian sheep industry.

The assessment involved a desktop review and testing topics with industry stakeholders. This informed development of the Framework, including establishing the sustainability priorities. Further testing occurred as part of the third stage consultation to confirm topics, scopes, and ranking, which were subsequently validated by the Sheep Sustainability Framework Steering Group. Each topic was ranked based on the industry's economic, environmental, and social impact (positive or negative) and the topic's influence on stakeholders' decisions in relation to the industry. Topics are ranked as highly material, material, or important in the materiality matrix below.

The highly material topics for the SSF are:

- Animal husbandry and handling
- Animal wellbeing and welfare

- Biodiversity
- Water security
- Greenhouse gas emissions
- Soil health and pasture management
- Water quality
- Chemicals
- Safety
- Biosecurity
- Food safety and quality

Material topics are typically updated every three to five years. The SSF plan to update the sheep industry materiality assessment in FY2024.



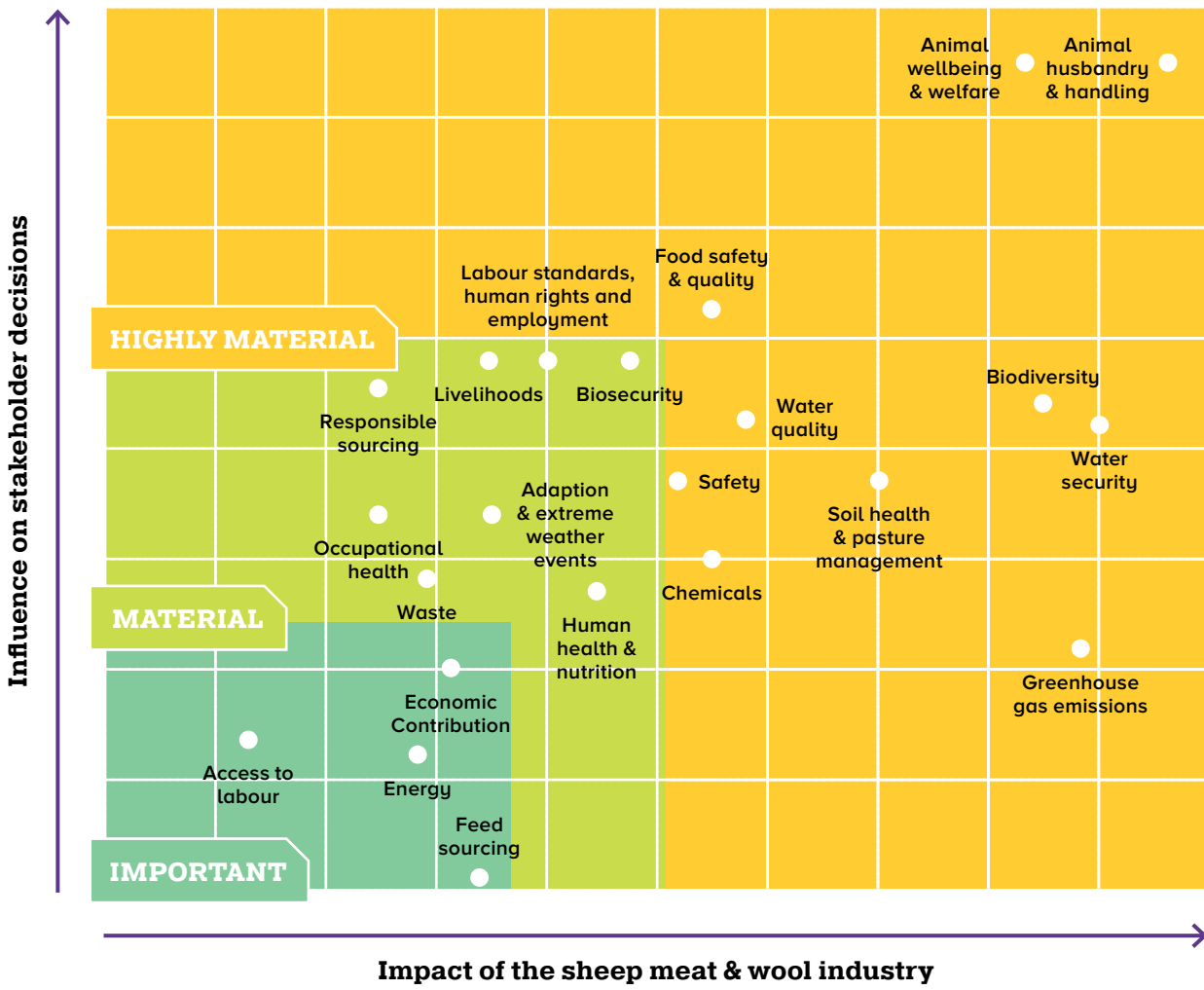


Figure 1. Materiality matrix for the Australian sheep industry.

SDG alignment

The United Nations Sustainable Development Goals (UN SDGs) were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030.

The UN SDGs consist of 17 goals, 169 targets, and 232 unique indicators. National governments, including Australia, are expected to contribute to and report on all 17 goals through the UN process. The sheep industry supports Australia’s contribution to the UN SDGs. Using a robust methodology based on consideration of each goal’s targets and indicators, the Sheep Sustainability Framework demonstrates alignment with 10 of the 17 goals including both leading and supporting contributions or impacts. The Framework is most closely aligned with:

Goal 2 – Zero hunger

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.



Figure 2. Alignment of Sheep Sustainability Framework to the United Nations Sustainable Development Goals.

The Sheep Sustainability Framework

The four themes

The Sheep Sustainability Framework uses indicators to track industry performance over time across four key themes:



Caring for our sheep

The health and wellbeing of our animals is fundamental to a sustainable industry and of critical importance to our stakeholders. Investment in research and adoption supports high standards of welfare and improvement.



Enhancing the environment and climate

As an industry, we recognise our role as environmental stewards, seek to minimise impact on the natural environment, and use natural resources wisely. We also seek to meet the challenge of a changing climate and mitigate our own Greenhouse Gas (GHG) emissions.



Looking after our people, our customers, and the community

A safe and healthy workforce, with the right skills to take the industry into the future, underpins our success. We make an important contribution to regional communities through our presence and business operations, and to the wider community through the provision of natural fibre and nutritious food.



Ensuring a financially resilient industry

The sheep industry makes a significant contribution to the Australian economy and supports regional employment. This contribution depends on the success of individual business which can withstand challenges that arise.



Some notes on this report

The indicators and metrics











This is the second Annual Report for the SSF and the third SSF report overall. The task of building a complete framework where every indicator has both metric and data is progressing well. In this report, 90% of SSF metrics have supporting data.

Whilst the SSF reports are annual, data reporting periods vary from annual, biennial to quinquennial (every five years) depending on the metric.

The classes of metric data for indicator reporting are as follows:

DATA TYPE	
Baseline data	The starting data point for an indicator and a reference against which future reporting can be assessed.
Second wave data	The second data point for an indicator. Directional changes identified from baseline data.
Third wave data	The third data point for an indicator. Directional changes identified from second wave data.
Data to be identified	There are some indicators and metrics that require development and optimisation before they can be reported, or suitable data are not available. The SSF strategic plan articulates the importance of working towards full metric reporting by end FY2024 and the SSF work plans reflect that requirement.

Data status key and 2023 progress summary

		% OF INDICATORS WITH THIS STATUS IN 2023	
Second and third wave data	Directional improvement		 28%
	Holding steady		 11%
	Directional decline		 11%
	Baseline data point		 41%
	Indicator, metric or data to be identified		 9%



Metric updates

On recommendation from the Steering Group and on approval from the Board, the following metric changes have been made.

Metric removal

■ ENHANCING THE ENVIRONMENT AND CLIMATE

This data is no longer collected and reported by ABARES and ABS. An alternative will need to be identified and sourced for FY2024.

- 3.1.2a % Sheep-producing land identified for conservation or protection purposes

Metric change

■ CARING FOR OUR SHEEP

The National Producer Survey results revealed that the appropriate pain management strategy for the animal husbandry method is not always selected. It is for this reason that the metric has changed from 'pain management' to 'appropriate pain management' for the method employed.

- 1.1.2a % producers who use pain management at mulesing – changed to % producers who use appropriate pain management at mulesing
- 1.1.2a % producers who use pain management at castration – changed to % producers who use appropriate pain management at castration
- 1.1.2a % producers who use pain management at tail docking – changed to % producers who use appropriate pain management at tail docking

■ LOOKING AFTER OUR PEOPLE, OUR CUSTOMERS, AND THE COMMUNITY

The National Producer Survey asked producers to indicate the difficulty they have in securing general labour/shearer labour for their sheep operation. The metric has been reworded to align with the context of the data collected.

- 6.1.3a Level of availability of workforce amongst producers – changed to % producers who find labour availability to be a major issue in their operation

The National Producer Survey asked producers to indicate the extent to which a succession plan has been developed for their enterprise. The metric has been reworded to align with the context of the data collected

- 6.1.4a % of producers with succession plans or exit strategies – changed to % producers with a formal succession plan in place

■ ENSURING A FINANCIALLY RESILIENT INDUSTRY

The wording and reporting method of this metric has changed to reflect the standard terms for expressing genetic progress over time.

- 8.3.1b Genetic breeding index for productivity - changed to % change in Dual Purpose Plus (DP+) Index

Metric addition

■ ENHANCING THE ENVIRONMENT AND CLIMATE

The National Producer Survey captured data about sheep producer activity in relation to intention to manage GHG emissions in their operation and the generation and use of renewable energy.

- 4.1.1e % sheep producers who have measured GHG emissions for their enterprise using carbon accounting or another process
- 4.1.2b % sheep producers who generate and use renewable energy

■ LOOKING AFTER OUR PEOPLE, OUR CUSTOMERS, AND THE COMMUNITY

The SSF accessed the Australian Bureau of Statistics Agricultural Statistics Program from the 2021 Census to obtain sheep industry-specific demographic data. This has allowed the SSF to accurately report the following metrics.

- 6.2.1 Extent of workforce diversity
 - » 6.2.1a Age breakdown of those who are employed in sheep farming and shearing services
 - » 6.2.1b Gender breakdown of those who are employed in sheep farming and shearing services
 - » 6.2.1c Indigenous and Torres Strait Islanders who are employed in sheep farming and shearing services
 - » 6.2.1d % Who speak a LOTE of those who are employed in sheep farming and shearing services

Indicator, metric or data to be identified

■ CARING FOR OUR SHEEP

- 1.2.5a % sheep transported in line with animal welfare standards

■ ENHANCING THE ENVIRONMENT AND CLIMATE

- 3.1.2 Conservation Practices
- 3.3.1 Maintaining and Increasing Biodiversity

■ LOOKING AFTER OUR PEOPLE, OUR CUSTOMERS, AND THE COMMUNITY

- 5.1.1a Total \$ investment in health and safety prevention and management
- 5.2.1 Status of physical and mental health
- 6.1.3b Level of availability of workforce among processors



Anlaby Station, Hamilton, South Australia



Caring for our sheep

- Material issues**
- Animal husbandry and handling
 - Animal wellbeing and welfare

see data status key page 24

■ ANIMAL CARE AND HANDLING

Priority Reduce, refine and replace painful husbandry procedures

Indicator	Data	Status	Source
1.1 Incidence of mulesing in AU flock			
1.1.1a % producers who mules their flock	Merino 52%	★	National Producer Survey 2022
	Non-Merino 8%	★	
1.1.1b % wool declared as non-mulesed/ceased mulesing	Merino 15.8%	●	AWEX FY2022
	Non-Merino 40.1%	●	

Data explained

1.1.1a

These figures are taken from the National Producer Survey conducted in 2022 with N=2003 sheep producers. The figures reflect on-farm practice for the 2021 calendar year.

% LAMBS MULESED

By way of comparison, the prevalence of lambs mulesed in the Australian flock in FY2021 is 56.8%.

Where

Merino lambs mulesed	85.1%
All other lambs mulesed	15.4%

Source: MLA and AWI Wool and Sheepmeat Survey August, 2021

1.1.1b

These figures represent the percentage of Australian bales of first-hand offered wool (excluding reoffers) with the National Wool Declaration (NWD) status of either non-mulesed or ceased mulesing.

The NWD is a voluntary scheme where not all wool is declared. For FY2022:

- 77.9 % of all Merino wool was declared
- 63.8 % of all non-Merino wool was declared

The percentage of non-mulesed/ceased mulesing bales offered is directionally higher than for FY2021.

Indicator	Data	Status	Source
1.1.2 Use of appropriate pain management associated with mulesing, castration, and tail docking			
1.1.2a % producers who use appropriate pain management at mulesing <i>Base: producers who mulesed in 2021</i>	Merino 88%	★	National Producer Survey 2022
	Non-Merino 83%	★	
1.1.2b % producers who use appropriate pain management at castration <i>Base: producers who castrated their male sheep in 2021 using the ring method</i>	Merino 12%	★	National Producer Survey 2022
	Non-Merino 11%	★	
1.1.2c % producers who use appropriate pain management at tail docking <i>Base: producers who tail docked their male lambs in 2021 using the ring method; producers who tail docked their male lambs in 2021 using the knife method</i>	Merino Hot Knife 78% Rings 11%	★	National Producer Survey 2022
	Non-Merino Hot Knife 39% Rings 10%	★	

THE TRANSITION TO NON-MULESED SHEEP

If producers wish to transition to a non-mulesed flock, many resources are available from AWI and MLA to support the producer:

AWI's Flystrike Extension Program supports woolgrowers in improving the lifetime welfare of their sheep, reducing their reliance on mulesing and crutching, optimising chemical use and increasing whole farm profitability through the provision of practical information and tools and access to accredited advisor support.

AWI's Planning for a Non-Mulesed Enterprise This report outlines the key learnings from a number of wool-growing enterprises that have moved to a non-mulesed enterprise. Its purpose is to assist other woolgrowers in their consideration and planning to also move to a non-mulesed Merino enterprise.

Towards Non-Mulesed Sheep is an MLA led project that utilises the principles of a Producer Demonstration Site (PDS) to guide producers through the design of a property-specific plan,

using existing tools and management strategies, to reduce reliance on mulesing.

Fly Boss is Australia's premier source of fly management information. It includes the FlyBoss **Flystrike Risk Simulator**, a comprehensive program that allows sheep producers to compare two different management systems. The program uses the property's local weather conditions to estimate the risk of flystrike, and sheep producers can then make the relevant adjustments for their enterprise.

Bred Well Fed Well (BFWF) is a one-day training workshop for sheep producers to develop a breeding objective, use breeding values and develop a nutrition plan to account for feed demand and feed availability.

Breech Wrinkle Scoring for Genetic Selection

Understanding MERINOSELECT ASBVs

Early Breech Wrinkle ASBVs: Have You Scored Lately?



Ella Matta, Kangaroo Island, South Australia

Data explained

1.1.2a

It is good husbandry practice for mulesing to be accompanied by appropriate pain management. The local anaesthetic Tri-Solfen® was registered for use in mulesing in 2007. The use of Tri-Solfen® is acknowledged as appropriate pain management for mulesing by Sheep Producers Australia and WoolProducers Australia.

The data are reported from the sample of **producers who mulesed in 2021**.

1.1.2b

It is good husbandry practice for castration to be accompanied by appropriate pain management. Appropriate pain management for castration is dependent on the method used. Sheep Producers Australia and WoolProducers Australia acknowledge that the use of Tri-Solfen®, Buccalgesic and Meloxicam is appropriate for the knife method while NumOcaine® is appropriate for the ring method.

The figures are reported from the sample of **producers who castrated their sheep in 2021 using the ring method**.

% PRODUCERS WHO CASTRATE MALE LAMBS

Merino 98%

Non-Merino 92%

% PRODUCERS WHO CASTRATE MALE LAMBS WITH RINGS

Merino 97%

Non-Merino 98%

1.1.2c

It is good husbandry practice for tail docking to be accompanied by appropriate pain management. Appropriate pain management for tail docking is dependent on the method used. Sheep Producers Australia and WoolProducers Australia acknowledge that the use of Tri-Solfen®, Buccalgesic and Meloxicam is appropriate for the knife method while NumOcaine® is appropriate for the ring method.

These figures are reported from the samples of **producers who tail docked their male lambs in 2021 using the ring method and producers who tail docked their male lambs in 2021 using the knife method**.

% PRODUCERS WHO TAIL DOCK MALE LAMBS

Merino 97%

Non-Merino 89%

TAIL DOCKING METHOD USED

Note the differences in the prevalence of Hot Knife use and Ring use between Merino and non-Merino producers for tail docking

MERINO

Hot Knife 58%

Ring 35%

NON-MERINO

Hot Knife 25%

Ring 73%

RESOURCES FOR PAIN MANAGEMENT

Several resources are available through AWI and MLA to inform producers on appropriate pain management products.

- [Anaesthetics and Analgesics at Lamb Marking](#) **AWI** resource
- [Anaesthetics and analgesics deliver on-the-ground benefits](#) **AWI** resource
- [Plan, Prepare and Conduct - Best Welfare Practice Lamb Marking Procedures Training Guide](#) **AWI** resource
- [Pain Relief Use in Sheep](#) **MLA** eLearning Modules
- [Pain Mitigation in Sheep and Cattle](#) **MLA** resource
- [Pain Mitigation in Sheep](#) **MLA** resource



Lynley Anderson at Anderson Rams, Kojunup, Western Australia

■ ANIMAL CARE AND HANDLING

Priority Implement best practice sheep management

Indicator	Data	Status	Source
1.2.1 Lamb survival			
1.2.1a % producers pregnancy scanning ewes for litter size	29%	★	National Producer Survey 2022
1.2.2 Adoption of best practice management			
1.2.2a % producers who have completed Lifetime Ewe Management (LTEM) training	9.4%	●	AWI FY2022
1.2.3 Shearing welfare			
1.2.3a Total number of days per year spent by shearing trainers in woolsheds nationally	1112	●	AWI FY2022
1.2.4 Wild predator management			
1.2.4a % producers who use a wild predator management strategy	44%	★	National Producer Survey 2022
<i>Base: producers who reported having a problem with predators on their property in 2021.</i>			
1.2.5 Transport of sheep within Australia to ensure welfare of sheep			
1.2.5a % sheep transported in line with animal welfare standards (fit to load)		🔍	
1.2.6 Sheep welfare in saleyards			
1.2.6a % sheep transacted through NSQA saleyards	50%	●	MLA FY2022
1.2.7 Wellbeing of live sheep during export			
1.2.7a % mortality on ships	0.14%	●	DAFF 2022

Data explained

1.2.1a

Pregnancy scanning of ewes for litter size enables producers to differentially manage ewes and tailor nutrition to increase birthweight, weaning rates, and ultimately lamb survival. It is for this reason that scanning for litter size is a good proxy for lamb survival. 42% of producers scan their ewes. Of these, 69% scan for dry, single, and multiple foetuses.

1.2.2a

The % of producers who have completed LTEM evaluated at end FY2022. This is calculated by comparing the LTEM participants (4,351) with AWI-eligible wool levy payers (46,493). Participation in the six-day LTEM training program indicates a strong likelihood of best practice adoption.

Data explained

1.2.3a

Targeted training reinforces best practice with new shearers and upskills existing shearers. Practical coaching is a key strategy to develop highly skilled shearers and optimise sheep welfare during shearing.

1.2.4a

Producer adoption of wild predator management strategies are considered a good indicator of effective predator control. This figure is reported from **producers who reported having a problem with predators in 2021**. The National Producer Survey reports that 78% of producers had a problem with predators on their property in 2021.

1.2.5a

Data to be identified.

1.2.6a

The National Saleyards Quality Assurance (NSQA) program was developed in 1996-97 to provide the saleyard sector of the livestock industry with a QA program linking the sectors of industry from the 'paddock to the plate'.

NSQA is third-party audited with AUS-MEAT contracted to conduct appropriate audits.

In FY2022, the data shows a directional decline from FY2021. In FY2022, 14% fewer of the total sheep transacted were administered through an NSQA facility compared with FY2021.

1.2.7a

Data on mortality as reported to Federal Parliament. A total of 379,870 live sheep were exported by sea in the calendar year 2022. The mortality figure has steadily declined since the 2021 SSF Report.



Paradoo Prime, Pigeon Ponds, Victoria

■ ANIMAL CARE AND HANDLING

Priority Ensure humane processing and on-farm euthanasia

Indicator	Data	Status	Source
1.3.1 Humane on-farm euthanasia			
1.3.1a % of producers aware of humane killing requirements in the Australian Animal Welfare Standards & Guidelines (AAWSG) for sheep.	78%	★	National Producer Survey 2022
1.3.2 Humane processing			
1.3.2a % of lambs and sheep slaughtered through an establishment accredited by the Australian Animal Welfare Certification System (AAWCS).	81.50%	●	MLA FY2022

Data explained

1.3.1a

This figure is reported as a % of all producers. The National Producer Survey results showed that 87% of producers were aware of the AAWSG for sheep. Of the group who reported awareness of the AAWSG, 90% were aware of the specific standards for the humane killing of sheep.

1.3.2a

The Australian Animal Welfare Certification System (AAWCS) is an independently audited certification program. It is used by livestock processors to demonstrate compliance with Australian industry standards from receipt of livestock to the point of humane processing. This figure has held steady.

Proof that pregnancy scanning pays off

Fresh research released in December 2022 has shown that pregnancy scanning of ewes pays off for sheep producers through boosting farm profits, in a project funded by Australian Wool Innovation (AWI) and Meat & Livestock Australia (MLA).

The project involved extensive analysis of scanning in flocks across winter and summer rainfall regions of southern Australia, across all genotypes, and for Autumn, Winter, and Spring lambings.

While the biggest returns come from pregnancy scanning for multiple births, the overall benefit lies in the producer being able to better tailor nutrition to meet the requirements of ewes, which flows on to increased lamb survival and weaning rates.

This was calculated by comparing farm profit lamb survival and weaning rates if the flock was not scanned at all.

Project leader, Associate Professor Forbes Brien of The University of Adelaide, says the results deliver a strong rationale for pregnancy scanning.

“Pregnancy scanning particularly for multiples can and should be a vital tool for improving reproductive rate, and lamb and ewe survival rates,” Dr Brien said.

“Scanning also enables producers to prepare their lambing feed budget in advance, detect dry ewes early, and to more rapidly detect and re-join empty ewes.”



Cousins Merino Services scanning ewes at Burra, South Australia

Flow-on benefits from pregnancy scanning profits

Sheep producers have responded positively to research that shows pregnancy scanning of ewes can boost profits by 400%, but their response is yet to translate into action on farm.

AWI's Emmah Goldsmith says a national producer study by AWI and MLA revealed that more than 60% of producers don't pregnancy scan their ewes at all, because they could see no benefit.

As AWI's Project Manager for Reproduction and Nutrition, Ms Goldsmith is hoping that figure will change as the latest research is incorporated into extension materials and rolled out over the next 12 months.

She says there are flow-on effects from running more productive flocks.

"The research showed an average profit of \$5.75 per ewe when scanning for multiples, and ranged from \$1.20 to \$10.60 per ewe," Ms Goldsmith said.

"For a flock of 2,000 ewes that's a profit of \$11,500, which I'm sure would make producers prick up their ears.

"Producers are also concerned by the expense of the mandatory electronic identification (eID) roll-out. Scanning will be an avenue to recoup some of those costs. If you can identify the pregnancy status of ewes and manage them accordingly, the profits will pay for the eID."

The national survey revealed that where producers did scan their ewes, 31% scanned only for pregnancy status, while 69% scanned for multiples. Ms Goldsmith says if producers just start scanning, they will reduce the number of 'passenger' ewes that aren't rearing a lamb.

But the biggest benefit lies in the ability to differentially manage single and multiple-bearing ewes.

"Every year the Australian sheep industry loses \$850 million due to peri-natal mortality," she said.

"Increasing the number of ewes that are differentially managed and fed to their optimal nutritional profile will certainly improve lamb survival rates.

"Hopefully we will see more growers scanning over the next few years. The biennial survey carried out by the Sheep Sustainability Framework is going to be really helpful for us to measure the impacts of this project."

AWI is finalising a fact sheet with MLA and the research findings will be integrated into existing programs such as Lifetime Ewe Management, Picking Performer Ewes, and the online resource, Making More From Sheep.

Training materials have also been developed for pregnancy scanning contractors, including a scanning image library.

Ms Goldsmith says the research team has been working actively with contractors to capacity build and encourage the trialling and adoption of innovations in scanning technology.

"Of the contractors surveyed in the project, 60% felt they had the ability to scan more flocks, so we have the capacity. This a real investment in the future, not just for the \$5.75 per head profit.

"The sustainability of the sheep industry is underpinned by reproductive efficiency. Increasing weaning rates will not only improve animal health and wellbeing, it will also drive genetic progress and increase financial resilience."

Focus on fertility boosts profitability

Central New South Wales woolgrower Craig Dunn is not surprised by research that shows scanning of ewes for multiple births can increase profits by as much as \$11.50/head.

For nearly 24 years he and his brother have employed a contractor to pregnancy scan their 17.5-micron Merino ewe flock and have increased the lamb weaning rate to 110-115% in adult ewes and 95-100% in the maidens.

Craig, his wife Kerri, their son Luke, and Craig's brother Grant run a flock of 4200 ewes – two-thirds Merino and one-third crossbred – across an aggregation of 2,250 hectares east of Parkes. The partnership grows wheat, canola, and barley, with a third of the crops used for grazing.

"We first started scanning for pregnant and dry ewes in the early 90s when the weaning rate was 80 per cent. We struggled for numbers in the Merinos because we were increasing our farm size and putting a third of our ewe lambs into a crossbred flock," Mr Dunn said.

"When we reached the stage where we could afford to cull the maidens to a crossbred flock when they didn't have a lamb the first year, it took only two to three years to make a huge difference to lambing percentages and weaning.



Maiden ewes that don't get pregnant or rear a lamb are culled to the crossbred flock. Merino ewes lamb in spring and the cull ewes are joined to Suffolk rams to produce prime lambs in Autumn.

"We haven't put a financial benefit on it but it's quite obvious the scanning has paid off. We have surplus numbers of more fertile ewes and more sheep to pick from when we're classing."

As one of the research farms in the early days of AWI's Lifetime Wool program, the Dunns implemented electronic identification (eID) across their flock and began scanning for multiples in 2004.

"That was a three-year project and because we had eID tags as part of the research, we'd scan all the sheep for twins and singles. We'd keep them in one mob until a month before lambing, when we'd shear them and give them a drench and five-in-one needle.

"Then we'd put the twinning ewes into separate paddocks and smaller mobs of 80-100 to lamb. In the future we plan to separate the multiples from singles much earlier, and we can feed them grain if necessary.

"We rotationally graze to keep the paddocks as fresh as we can before the start of lambing, then we put the ewes into about 40 small mobs and set stock until lamb marking."

Mr Dunn says optimal nutrition is a key factor in boosting fertility, particularly for ewes with multiple births. The Dunns started condition scoring five-to-six years ago, which gave them a better understanding of the condition that ewes need to be in, to conceive and rear a lamb.

"We feed all the ewes grain before they're joined and during joining, which helps conception rates. We're also finding that a higher percentage of ewes



Research Officer in Maternal Efficiency Gordon Refshaug scans ewes at Cowra, New South Wales

are falling pregnant in their first cycle at joining, so we don't have a 'tail' of smaller lambs at marking," Mr Dunn said.

"We use eID to fleece weigh, body weigh and micron test our maiden ewes, and put that into an index for classing."

It's also important to prepare the ewes properly for scanning.

"We bring them to paddocks near the shearing shed a day or two before and keep them off feed, especially grain, because it stays in their stomach longer and can interfere with the scanning," he said.

"We employ a scanning contractor but we supply two-to-three people to push the sheep through. The crossbred ewes are done separately and only take a day."

Pregnancy scanning is not widespread in their district, Craig says, but it pays off for the Dunn family's enterprise.

"Pregnancy scanning of ewes has been beneficial from the start and we're seeing more benefits the longer we go on," he said.



Image by The Land. Grant and Craig Dunn, Mandagery, New South Wales

■ ANIMAL HEALTH

Priority Prevent and manage disease

Indicator	Data	Status	Source
2.1.1 Australia maintaining freedom from disease			
2.1.1a Australia continues to be declared free from 12 major diseases	YES	●	DAFF 2023
2.1.2 On-farm activity to prevent and treat disease			
2.1.2a % of producers who vaccinate their flock (any vaccine)	91%	★	National Producer Survey 2022
2.1.2b % change in Australian Sheep Breeding Values (ASBV)	Change in Worm Egg Count Breeding Value %change = -36	●	MERINOSELECT Database
	Change in Early Breech Wrinkle Breeding Value %change = -15	●	MLA 2021
2.1.3 Producers adhering to biosecurity requirements			
2.1.3a % sheep producers compliant with LPA biosecurity requirements	80.1%	●	Integrity Systems Company 2022

Data explained

2.1.1a

Australia continues to be free of the world's worst sheep diseases such as foot and mouth disease and peste de petits ruminants. These are two of the 12 diseases recognised by the World Organisation for Animal Health (WOAH) with a listed disease status.

2.1.2a

Vaccination is an important and highly effective method to protect sheep from disease. When used correctly as part of a property health plan, vaccines can help prevent common endemic diseases. A sound vaccination program improves animal health and welfare and enhances enterprise productivity. The prevalence of vaccine use is a strong indicator of Australia's commitment to disease prevention.

The National Producer Survey reported that, on average, 97% of producers' entire flocks received at least one vaccination of any type of vaccine.

2.1.2b

Worms and breech flystrike are among the most important health challenges for the Australian sheep industry. Genetic improvement is key to preventing disease. Tracking changes in Australian Sheep Breeding Values (ASBV) over time provides insights on changes in disease resistance in the Australian flock. This data reports the % change in the lambs born between 2020 and 2021. A reduction in the Worm Egg Count (WEC) and Early Breech Wrinkle (EBW) Breeding Values between 2020 and 2021 means flock resistance to worms and breech flystrike is increasing.

2.1.2c

To meet the requirements of the Livestock Production Assurance (LPA) program, each enterprise must have a documented biosecurity plan. Of the 1,142 sheep producers audited by Integrity Systems Company in 2022, 80.1% had a biosecurity plan. The 19.9% who did not have a biosecurity plan when audited have either put a biosecurity plan in place OR been removed from the LPA program. Removal from the program means that sheep from that enterprise may not be transacted.



Enhancing the environment and climate

Material issues

- GHG emissions
- Soil health and pasture management
- Chemicals
- Biodiversity
- Energy
- Adaptation and extreme weather events

See data status key page 24

■ ENVIRONMENT

Priority Improve natural resource management

Indicator	Data	Status	Source
3.1.1 Protecting soil resource			
3.1.1a % Sheep-grazing land achieving 50% ground cover	62.2%	●	CiboLabs Dec 2021
3.1.2 Conservation practices			
3.1.2a New metric to be determined		🔍	

Data explained

3.1.1a

Fractional ground cover is a key indicator of land condition and refers to pasture plants, native species, and plant and tree leaf litter that can protect the soil surface from erosion. Ground cover is also a good proxy for degree of biodiversity and magnitude of atmospheric carbon dioxide uptake and storage.

The Australian Beef Sustainability Framework’s Balance of Tree and Grass Cover satellite imagery dashboard has been modified to allow discernment and evaluation of seasonal measures from sheep-grazing regions. While the 30 years of satellite data expressed is continuous, the ground cover tracking for the SSF will be reported annually.

As a baseline, it was decided that figures will be drawn from the summer seasonal data collection phase. Further, it was decided that the metric reported would be the percentage of national sheep-grazing land with at least 50% ground cover.

In December 2020 the dashboard reported that 63.4% of national sheep-grazing land had at least 50% ground cover. In December of 2021, 62.2% of sheep-grazing land had achieved at least 50% ground cover, indicating that the biomass across Australia’s sheep-grazing land has held steady over the 12 months.

3.1.2a

The previously reported data for % sheep-producing land identified for conservation or protection purposes is no longer collected and reported by ABARES and ABS.

An alternative will need to be identified and sourced for FY2024.

Sustainability ‘complementary’ to the business of wool growing

Six generations of Roderic O’Connor’s family have lived on 17,800 hectare ‘Connorville’ in Tasmania’s northern midlands for nearly 200 years, so a commitment to farming sustainably is in his DNA. Today, Mr O’Connor keeps sustainability at the forefront of his thinking to ensure the farm survives and flourishes, that biodiversity is encouraged, the health of the planet is boosted, and he earns the ongoing social licence to be a farmer.

He’s emphatic that improving the sustainability of his livestock enterprise goes hand-in-hand with increased profitability and efficiency.

Streamlined operation includes conservation covenant

“In the early 2000s we had a complex business that required a lot of staff – two sheep studs, a cattle stud, commercial beef and lamb flocks and a deer operation – but the enterprise wasn’t profitable,” Mr O’Connor said.

“We streamlined the whole operation so we now produce only prime lambs, fine wool and beef cattle. Around the same time, we signed the first conservation covenant with the Federal Government, and we now have about 23% of the property in a perpetual conservation covenant with only limited grazing.”

Decisions weren’t made lightly. Mr O’Connor believes it’s important to take the time to do some enterprise accounting to see what is and isn’t working.

“If you’re going to change your operation to make it more sustainable and productive, you really need to do your homework,” he said.

“We got a lot of traction when we modernised, but it was a big catch-up program. New technology has had an impact in every sector, from stock handling systems and yards, satellite technology in machinery, minimum tillage and fertiliser application down to the micro level. It’s been a quantum leap, particularly when combined with elements of rotational grazing and regenerative farming.”

Seasonal variation prompts investment in low stocking rates and irrigation

Strategic breeding, stocking rates, pivot irrigation systems, and feed budgeting are just some of the ways the business has remained productive and profitable despite seasonal extremes at Connorville, which has an annual rainfall of 600mm.

Prime lambs are marketed mainly through the Coles GRAZE program for grassfed meat, which includes standards that cover feed and water as well as traceability, animal welfare, and handling.



Connorville, Tasmania

Stocking rates are low per paddock (ranging from 0.5 DSE/ha in conservation areas through to 50 DSE/ha elsewhere) and they aim to retain around 2,500kg of dry matter per hectare as a minimum through any season.

“We set stock our cattle but probably at 40% of the region’s average stocking rate, and we do a form of rotational grazing for sheep,” said Mr O’Connor.

“We also have a fairly large pivot irrigation project that we can use to dial up feed in a drought.”

The irrigation covers 900ha using centre pivots and a limited closed-loop gravity system. While they’ve recently added another 700ML dam, the O’Connors only use around 15% of their total water licence capacity.

Feed budgets and strategic fertiliser maximises returns

“Spring and autumn has been erratic in the past decade, so we have to be very quick to respond. We’re doing things now that we never would have done 15 or 20 years ago, such as fattening or holding more stock through.

“Managing our feed budget regularly is a basic way to stay resilient. I did a course on using MLA’s feed budgeting tool about five years ago and I’ve found this to be really useful for mapping our feed budget two to three months ahead,” Mr O’Connor said.

“Adjusting our fertiliser rates depending on land condition has also helped us maximise the productivity of our available feed base to the benefit of our livestock.”

Woolgrowers work to restore and conserve Midlands ‘Ark’

Connorville has been an active member of Greening Australia’s Tasmania Island Ark program due to its proximity to the Midlands region, which is one of only 15 National Biodiversity Hotspots in Australia.

The region has high concentrations of species that are threatened with extinction, such as the eastern barred bandicoot, the eastern bettong, and several endangered orchid species.

In collaboration with local woolgrowers, Greening Australia has restored more than 1,000ha through the planting of some 250,000 native plants in grassy woodlands and river flats, and an additional 200ha of existing native vegetation is being managed for conservation purposes.

“The Ark has been a very productive program,” Mr O’Connor said.

“Large scale conservation is the way to go – small scale can fritter away a lot of connectivity. The Ark works well for farmers and the connecting corridors support the Midlands Hotspot.”

He sees his role as a nature conservationist not just as an aside to his profession as a woolgrower but complementary in every respect.

“The only way to get more production out of your stock is to look after your land and look after the animals,” he said.

“Some people can do this easily, some can’t. But as a general rule, sustainability has to be at the forefront of your thinking because the public will demand it. At the end of the day it’ll do the planet good and you can get value from it, so you have to be aware and keep going down that road.”



Roderic O’Connor at Connorville, Cressy, Tasmania

■ ENVIRONMENT

Priority Responsible environmental practices

Indicator	Data	Status	Source
3.2.1 Responsible chemical stewardship			
3.2.1a % producers who have attended a ChemCert course or similar	82%	★	National Producer Survey 2022
3.2.2 Efficient water use in processing			
3.2.2a Kilotres water used per tonne hot standard carcase weight (HSCW) when processing sheepmeat	7.2kL H ₂ O/t HSCW	★	AMPC Environmental Performance Review CSIRO 2022
3.2.3 Minimise waste in processing			
3.2.3a Kilograms of solid waste per tonne hot standard carcase weight (HSCW) when processing sheepmeat	29.8kg/t HSCW	★	AMPC Environmental Performance Review CSIRO 2022

Data explained

3.2.1a

Independent training of producers on the safe and effective use of agricultural chemicals (e.g., ChemCert) is an important step in responsible chemical stewardship. The National Producer Survey reports that 82% of producers have attended a chemical training course. Of these, 77% have ChemCERT accreditation or hold a current ChemCERT card.

3.2.2a and 3.2.3a

These metrics provide a measure of water usage and waste produced in the Australian sheepmeat processing sector. The Australian Meat Processor Corporation (AMPC) reports water use and waste production from processing in its Environmental Performance Review (EPR). This is the first year that sheep and cattle processing figures have been calculated separately in the review. AMPC has engaged the CSIRO to conduct the EPR biennially.

■ ENVIRONMENT

Priority Encourage biodiversity

Indicator	Data	Status	Source
3.3.1 Maintaining and increasing biodiversity			
Specific metrics to be identified. Biodiversity is notoriously hard to measure in a representative and comparable fashion. Many groups in Australia and across the world are making progress in tackling this reporting challenge. When a sound methodology with sheep industry-relevant metrics is developed and validated, the SSF will baseline the industry's performance.		🔍	

■ CLIMATE CHANGE

Priority Reduce net GHG emissions

Indicator	Data	Status	Source
4.1.1 Contribution of sheep production to GHG emissions			
4.1.1a Net emissions: Mt of CO ₂ e generated by sheep industry (farm and sheepmeat processing)	9.49Mt CO ₂ e	●	CSIRO 2020
4.1.1b Emission intensity: kg of CO ₂ e emitted per kg liveweight (LW) when raising sheep	6.8kg CO ₂ e/kg LW	★	Integrity Ag 2020
4.1.1c Emission intensity: kg of CO ₂ e emitted per kg greasy wool shorn	24.4kg CO ₂ e/kg greasy wool	★	Integrity Ag 2020
4.1.1d Emission intensity: kg of CO ₂ e emitted per tonne hot standard carcase weight (HSCW) when processing sheepmeat	364kg CO ₂ e/t HSCW	★	AMPC Environmental Performance Review CSIRO 2022
4.1.1e % sheep producers who have measured GHG emissions for their enterprise using carbon accounting or another process	3%	★	National Producer Survey 2022
4.1.2 Renewable energy			
4.1.2a % sheep producers who generate and use renewable energy	50%	★	National Producer Survey 2022

Data explained

4.1.1a

The reported figure is calculated using data from Australia's National Greenhouse Gas Inventory (NGGI) of national emissions, AR5 values for GWP100 and Land Use (LU) and land use change & forestry (LUCF). As the majority of Australian wool is processed overseas, wool processing has not been included.

The sheep industry's net emissions have decreased from 10.2 MtCO₂e in 2019 to 9.5 MtCO₂e in 2020.

Note: For 2020, the sheep industry represents approximately 1.7% of Australia's total GHG emissions (498 MtCO₂e 2020 Source: NGGI).

4.1.1b

A Life Cycle Assessment report, currently being finalised, estimates emissions intensity of the Australian flock used for wool, sheepmeat production or live export for the year 2020.

4.1.1c

A Life Cycle Assessment report, currently being finalised, estimates emissions intensity of the Australian flock used for wool, sheepmeat production or live export for the year 2020.

4.1.1d

This figure reports the emissions intensity of the Australian sheepmeat processing sector. The Australian Meat Processor Corporation (AMPC) reports emission intensity in its Environmental Performance Review (EPR). This is the first year that sheep and cattle processing figures have been calculated separately in the review. AMPC have engaged the CSIRO to conduct the EPR biennially.

Data explained

4.1.1e

The National Producer Survey found that whilst 3% of producers have a carbon account for their enterprise, 9% have undertaken carbon neutral or carbon accounting training.

4.1.2a

The National Producer Survey found that of the producers who generate and use renewable energy, 83% used solar energy without battery and 6% used wind energy.

Net GHG emissions from the Australian sheep industry

About AR4 and AR5

At regular intervals, the Intergovernmental Panel on Climate Change (IPCC) prepares comprehensive Assessment Reports of scientific, technical, and socio-economic information relevant for the understanding of human-induced climate change, potential impacts of climate change, and options for mitigation and adaptation.

Four Assessment Reports have been completed, in 1990, 1995, 2001, and 2007.

The Fifth Assessment Report (AR5) provides a clear and up-to-date view of the current state of scientific knowledge relevant to climate change. This includes updating emissions values based on tonnes of carbon dioxide equivalent greenhouse gases (AR5 values).

In the 2022 SSF Report, the CSIRO used AR4 values to calculate 4.1.1a net emissions. Since then, CSIRO has adopted the AR5 values for the calculation and has adjusted previous years' figures to reflect that change.

Trending over time

When comparing the figures using AR5, net emissions from the Australian sheep industry have declined by 1.9Mt CO₂e (17%) over the three-year period 2018-2020.

This is due primarily to reductions in enteric fermentation, use of non-renewable energy, and an increase in land used for forests.

YEAR	2018	2019	2020
Mt CO ₂ e generated by sheep industry	11.39	10.21	9.49



About CN30: The Carbon Neutral 2030 program for the red meat industry

CN30 is the Australian red meat industry's voluntary target to achieve carbon neutrality by 2030. It includes the grazing, feedlot, and processing sector for sheep, cattle, and goats. It aims to achieve carbon neutrality while capturing benefits for sustainability, productivity, and profitability.

The Australian red meat industry is the custodian of nearly 50% of Australia's land mass, placing it in a unique position to influence both carbon emission and sequestration.

The CN30 program invests in a range of technologies and projects designed to achieve the industry target. The optimisation and implementation of strategies to promote soil organic carbon is a cornerstone of CN30 investment, and equally important is the development and commercialisation of emission-reducing technologies. CN30 invests in the advancement of methane-suppressant additives, delivery methods for additives in grazing systems, and genetic selection for low methane-producing animals. The awareness

About CN30: The Carbon Neutral 2030 program for the red meat industry (cont.)

and adoption of production efficiencies will play a critical role in achieving CN30 by driving down emission intensity.

Over the past 12 months, CN30 has delivered leadership- and capability-building products for the red meat industry. These include:

- Carbon E-Learning – a series of self-paced online learning modules for red meat producers

- MLA Carbon Calculator – an improved version of the industry best standard greenhouse gas calculator to allow producers to readily calculate their carbon account.

Under development is the CarbonEDGE, a curriculum for MLA's flagship multi-day workshop series focused on carbon farming to be launched in 2024.



Trigger Vale, Lockhart, New South Wales

About carbon accounting

Carbon accounting and emissions reductions activities

How can Australian sheep producers and wool growers make a start on reducing their GHG emissions? An important first step for producers is to create a carbon account to determine what their net GHG emissions position is, so they can identify strategies to reduce emissions and improve carbon storage on-farm.

What is carbon accounting?

Carbon accounting is the process producers can use to determine their annual net GHG emissions position. There are two main elements of a carbon account:

- Annual GHG Emissions, which come from
 - » carbon dioxide from fossil fuels used for electricity, transport, and inputs such as fertiliser and supplementary feed

- » nitrous oxide from fertiliser application and livestock manure

- » enteric methane produced when ruminants digest food; and

- Carbon Stocks On-Farm, which are stocks of carbon that have been removed from the atmosphere and stored in vegetation and soils.

Why is carbon accounting important?

Calculating baseline carbon emissions and stored carbon is an essential first step for producers who are considering opportunities arising from low or zero carbon branded products. A carbon account can be used in on-farm decision making and sets a benchmark to show progress over time. Just as financial accounting assists in financial decision making and reporting, carbon accounting aids decision making and reporting around how carbon is, or is not, used on-farm.

ENVIRONMENT

Priority Adapt to a changing climate

Indicator	Data	Status	Source
4.2.1 Response to a changing and variable climate			
4.2.1a Climate-adjusted TFP growth	0.0%	●	ABARES 1999-2000 (base year) to 2020-2021

Data explained

4.2.1a

This figure shows that climate-adjusted productivity has remained steady since 2019-2021.

Total Factor Productivity (TFP) is expressed as average annual % growth over a given period and is relative to change from the base year.

In this case, climate-adjusted TFP takes climatic activity into account and, year on year, will evaluate the change in productivity due to extreme climate events.

Climate-adjusted productivity aims to account for climate change effects.

It models the effect of climate conditions (such as rainfall and temperature) on TFP and then calculates climate-adjusted productivity with the effects of climate removed.

Increases in climate-adjusted productivity show an industry is increasing productivity despite the impacts of climate – in other words, it is adapting and demonstrating resilience to climate change.



Emu Downs Wind and Solar Farm, Badgingarra, Western Australia



Looking after our people, our customers and the community

Material issues

- Safety
- Labour standards, human rights, and employment
- Livelihoods
- Occupational health

See data status key page 24

■ HEALTH AND SAFETY

Priority Improve industry safety culture

Indicator	Data	Status	Source
5.1.1 Investment in health and safety prevention and training			
5.1.1a Total \$ investment in health and safety prevention and management		🔍	
5.1.2 Number of deaths and serious injuries			
5.1.2a Number of fatalities in the sheep industry	On-farm: 34	●	Safe Work Australia's Work-related Traumatic Injury Fatalities Database 2017-2021p
5.1.2b Number of serious injury workers' compensation claims in the sheep industry	On-farm: 263 serious claims	●	Safe Work Australia's National Dataset for Compensation-based Statistics (NDS) 2020-2021p



Women's Shearing School, Daysdale, New South Wales

Data explained

5.1.1a

Metric to be reviewed as securing accurate figures for industry investment in health and safety prevention and management is proving difficult.

5.1.2a

Fatality data includes all persons who were traumatically fatally injured, and whose injuries resulted from work activity or exposures, and whose injuries occurred in an incident that took place in Australian territories or territorial waters.

The 2020-21 data are preliminary (denoted by 'p'). They are likely to rise as revisions occur in future years.

There have been zero on-farm deaths since the last reporting period.

The on-farm figure combines fatalities attributable to specialised sheep farming and sheep-beef cattle farming and is broken down as follows:

Sheep farming (specialised): 14 worker fatalities

Sheep-beef cattle farming: 20 worker fatalities

5.1.2b

A serious claim is an accepted workers' compensation claim for an incapacity that resulted in a total absence from work of one working week or more.

The 2020-21 data are preliminary (denoted by 'p'). They are likely to rise as revisions occur in future years.

The on-farm figure combines serious injury claims attributable to specialised sheep farming and sheep-beef cattle farming and is broken down as follows:

Sheep farming (specialised): 92 serious claims

Sheep-beef cattle farming: 171 serious claims

Of grave concern is that the serious injury claims in specialised sheep farming have increased by 40% since 2019-20 and sheep-beef cattle farming claims have risen by 6%.

More about the rise in serious injury workers' compensation claims

The increase in serious injury frequency over the reporting period is likely due to number of converging issues. Data from Safe Work Australia reveals that the increase is driven by a two-fold rise in two classes of injury : traumatic joint/ligament and muscle/tendon injuries and wounds, lacerations, amputations, and internal organ damage. Industry actors have posited that the steady increase in average size, weight, and physical condition of sheep, particularly ewes, presents ongoing challenges. This trend, coupled with shortages in skilled labour, means that the workforce is more likely to be working alone and/or for longer hours. The older skewed age profile of the workforce increases the risk of serious injury : nearly half (47%) of the sheep industry's skilled workforce is aged fifty-five years and over. Further, sheep producers are now more likely to draw from a pool of unskilled labour. Under these conditions, the workforce - both skilled and unskilled - are exposed to a higher risk of injury.

However, there are improvements the industry can make to reduce the risk by increasing producer participation in Work Health and Safety (WHS) risk management. Findings from the 2022 National Producer Survey show that 57% of sheep producers have conducted a WHS risk assessment to identify hazards that can cause harm to the workforce. Fewer than half (47%) have a WHS Management Plan that outlines specific risks and describes the measures in place to eliminate or control such risks.

Each Australian state and territory have a WHS Act. Each Act affirms that producers have a positive obligation of due diligence to provide a safe workplace. This requires producers to have up-to-date knowledge of WHS matters, understand the hazards and risks associated with work, ensure resources are available to eliminate or minimise risk and have processes to evaluate incidents and respond accordingly. Serious injuries can be significantly reduced by ensuring that all on-farm workforce participants understand and commit to formal on-farm risk assessments, safety planning and training, induction obligations and legislative requirements in their state or territory.

HEALTH AND SAFETY

Priority Improve our people's health

Indicator	Data	Status	Source
5.2.1 Status of physical and mental health			
		🔍	

Data explained

5.2.1a

5.2.1a Metric to be identified



■ CAPACITY BUILDING

Priority Support and grow workforce

Indicator	Data	Status	Source
6.1.1 Capacity of workforce			
6.1.1a % of on-farm industry participants who have completed further education	45%	★	ABS 2021 Census
6.1.2 Appropriate working conditions			
6.1.2a Federal award rate ratio	1.23:1	●	Fair Work Ombudsman Pastoral Award Casual National Minimum Wage FY2023
6.1.3 Availability of workforce			
6.1.3a % producers who find labour availability to be a major issue in their operation	General labour: 35% Shearing labour: 38%	★	National Producer Survey 2022
6.1.3b Level of availability of workforce among processors		🔍	
6.1.4 Extent of succession planning in the industry			
6.1.4a % of producers with a formal succession plan in place	21%	★	National Producer Survey 2022

Data explained

6.1.1a

This data is taken from the Australian Census conducted in 2021 for those who are employed in sheep farming and shearing services across the 40 sheep-grazing NRM regions of Australia.

Further education is defined as training designed for skilled work outside secondary school. It includes certificate III, IV, diploma and advanced diploma, bachelor's degree, graduate certificate, graduate diploma, and postgraduate degrees.

6.1.2a

A ratio comparing the shed hand hourly casual rate with more than 65 days' work experience (\$32.83) with the minimum award hourly casual rate (\$26.73 + 25%) per hour is reported. The shed hand rate is as per the Federal Pastoral Award and is considered the most utilised on-farm payment rate. The ratio has held steady over the reporting period with the shed hand hourly rate increasing in line with the Federal Casual Award.

6.1.3a

The National Producer Survey asks producers to rate the extent to which availability of general labour/shearer labour is an issue for their sheep operation.

More than a third of producers surveyed said they had **major issues** with the availability of both general labour and shearers. There was no significant difference between Merino and Non-Merino producers in this regard.

Fewer than half reported **no issues** with general labour availability (45%) or shearers (41%) whilst 20% experienced only **moderate issues** with both general and shearer labour.

Data explained

6.1.3b

Metric and data to be identified

6.1.4a

The National Producer Survey found that succession preparedness varied among respondents. Nationally, 29% are yet to commence any discussion or planning while 49% have begun discussions with the family. Only 21% report having a formal succession plan in place.

Succession planning is often a complex issue for farm businesses. Family situations are unique and meeting the expectations of all members can be difficult. Furthermore, the decisions to be made about assets and liabilities can be triggered by unexpected and traumatic events outside the owner's control, such as divorce or death.

■ CAPACITY BUILDING

Priority Encourage workforce diversity

Indicator	Data	Status	Source
6.2.1 Extent of workforce diversity			
6.2.1a Age distribution of those who are employed in sheep farming and shearing services	Aged 15-34 - 20% Aged 35-54 - 32% Aged 55-74 - 40% Aged 75-100 - 7%	★	ABS 2021 Census
6.2.1b Gender breakdown of those who are employed in sheep farming and shearing services	Men - 72% Women - 28%	★	ABS 2021 Census
6.2.1c % Indigenous and Torres Strait Islanders who are employed in sheep farming and shearing services	1.5%	★	ABS 2021 Census
6.2.1d % who speak a LOTE in those who are employed in sheep farming and shearing services	2%	★	ABS 2021 Census

Data explained

6.2.1a

This data is taken from the Australian Census conducted in 2021 for those who are employed in sheep farming and shearing services across the 40 sheep-grazing NRM regions of Australia.

The sheep industry skews strongly towards an older age profile, with two in five aged between 55 and 74. For the Australian population, 55-74-year-old people comprise one in four. Of concern is that the industry under indexes on younger people aged 15-34 at 20% where the national figure is 32%.

6.2.1b

This data is taken from the Australian Census conducted in 2021 for those who are employed in sheep farming and shearing services across the 40 sheep-grazing NRM regions of Australia.

The sheep industry is strongly male, with fewer than three in 10 women.

Data explained

6.2.1c

This data is taken from the Australian Census conducted in 2021 for those who are employed in sheep farming and shearing services across Australia.

Indigenous and Torres Strait Islanders represent only 1.5% of those employed in sheep farming and shearing services.

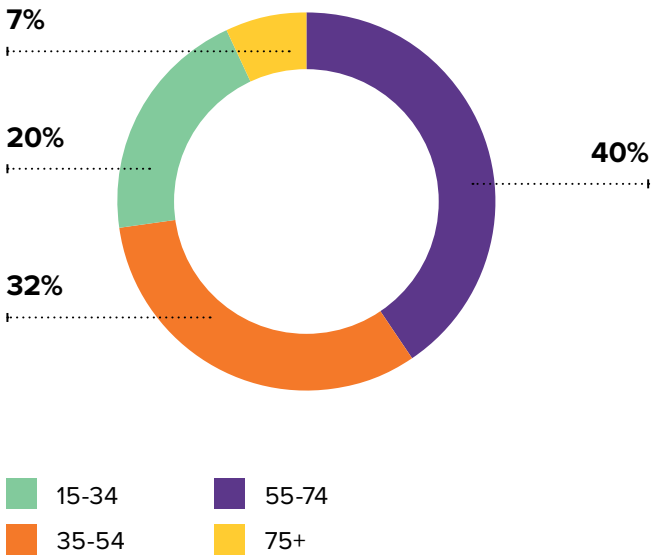
6.2.1d

This data is taken from the Australian Census conducted in 2021 for those who are employed in sheep farming and shearing services across Australia.

Two per cent of people employed in sheep farming and shearing services speak a language other than English (LOTE).

Age distribution of people working in the Australian sheep industry

Source: ABS 2021 Census



David and Melissa Greig with daughters at Bellevue Rural Enterprises, Tottenham, New South Wales

Women shearers: putting the she in shearing

Training school commemorates female shearer

Lucy Sturgess remembers when her best friend Jacinta 'Cinny' Beetson first started working in shearing sheds around Corowa, in southern NSW, a few years ago.

"Cinny started as a rouseabout and then some of the boys let her try shearing, and she thrived from then on, she just loved shearing and working with our team," Ms Sturgess said.

Tragically, 23-year-old Jacinta was killed in a car accident in June, 2022. To commemorate her spirit and drive, Lucy and her friends decided to organise a 10-day female shearing and wool classing school in March on Peter Hanrahan's property 'Cosgrove', at Daysdale.

"Some of the money to fund the school came from almost \$20,000 that we raised for her family from 'Shear for Cinny' days, when we donated our time and the woolgrower contributed money from wool that sold above its reserve price," Ms Sturgess explained.

"We bought equipment like comb pouches and cutter dispensers from TB Shearing Supplies in Corowa and six women did the AWI shearing school. It was a fantastic couple of weeks and we're hoping to make it an annual event to honour Jacinta and what she loved to do."

Lucy only intended to do a week of the school but by the third day had asked her boss, Corowa contractor Steve Talbot, if she could do the whole 10 days.

She joined Kristy Schulz, sisters Monica and Ella Drumgold, Keely Hardy, and Jemma Holmes to learn about wool handling, pressing, shearing, and crutching from AWI trainers, Richard Leahy and Kristel Weatherall.

A shearing trainer for 22 years, Richard Leahy says the industry has 'changed immensely' since he first started at Longreach in western Queensland in the 1980s. He hopes woolgrowers realise what a great investment their AWI levy is making, in training new workers for the industry.

"When I first started shearing, everything stopped when a woman came into the shed," Mr Leahy said.

"But these days, everyone is just doing the work – it makes no difference whether you're male or female, you just have to cut the wool off the sheep properly.

"If you count wool handlers, the ratio of men to women in the sheds is probably 70:30. Around here most of the shearers get home every night and they earn a very good wage – there are plenty making \$3,000-\$4,000 a week."

The workshop was the first time Lucy learned to shear but she's no stranger to being in a woolshed. She completed a school-based apprenticeship in agriculture on a local sheep and cropping farm at nearby Boorhaman.

A wool handling job came up with Steve Talbot Shearing and Crutching Services, and now she spends 10 months of the year travelling to local sheds to work as a rouseabout and classer.

Ms Sturgess says for any shearers, there's a difference between being physically fit and 'fit for the job'.

"You don't have to be able to run 10km to be fit for shearing," she said.

"It's a matter of the right nutrition and just constantly shearing so that your fitness matches the job. The dragging of the sheep is the most physical part, the shearing concept itself is reasonably easy to get the hang of.

"Richard would do a demonstration for us every hour and he makes shearing look effortless, so it's a bit frustrating when you can't do it like that straight away, and some sheep – like crossbreds – are more challenging to handle.

"But I would 100% recommend it as a career. Some things look daunting, but if you've got the will to learn and the drive to do it, anybody can. Do a school and see if you like it because it's a very rewarding industry to be in."



Jacinta 'Cinny' Beetson is the inspiration for women to take up shearing - from Talbot Shearing Facebook Page

■ CONTRIBUTION TO THE COMMUNITY

Priority Enhance community trust

Indicator	Data	Status	Source
7.1.1 Community perceptions of the sheep industry			
7.1.1a % of Australians who believe that Australian lambs are farmed and raised in a humane manner	55%	●	MLA Consumer Sentiment Study 2022
7.1.1b % of respondents who believe wool is more environmentally friendly than other fibres	52%	★	AWI 2022 Global Brand Tracking Study

Data explained

7.1.1a	7.1.1b
The MLA Consumer Sentiment Research is conducted by Pollinate. Now in its 14 th year, it surveys about 1,500 nationally representative consumers annually. This measure has directionally increased from 52% in 2021.	The AWI Global Brand Tracking design was modified in 2022 to accommodate changes in global market dynamics. The Indian market was removed from the study, and the Australian market was included. These changes mean that the 2022 figure is not comparable with data points from 2020 and 2021. For these reasons, this datum is classed as benchmark.

■ CONTRIBUTION TO THE COMMUNITY

Priority Deliver products that consumers demand

Indicator	Data	Status	Source
7.2.1 Community perceptions of product quality			
7.2.1a % of Australians who believe that Australian lamb is worth paying a bit more for	25%	●	MLA Domestic Consumer Tracker 2022
7.2.1b Willingness to pay (WTP) for 100% wool garments	52%	★	AWI 2022 Global Brand Tracking Study

Data explained

7.2.1a	7.2.1b
The MLA Domestic Tracker is conducted by Kantar. The reported figure is the Moving Annual Total (MAT) for about 100 nationally representative respondents surveyed weekly over 12 months. This figure remains steady.	The AWI Global Brand Tracking design was modified in 2022 to accommodate changes in global market dynamics. The Indian market was removed from the study, and the Australian market was included. These changes mean that the 2022 figure is not comparable with data points from 2020 and 2021. For these reasons, this datum is classed as benchmark.



Ensuring a financially resilient industry

Material issues • Economic contribution

See data status key page 24

■ PROFITABILITY, PRODUCTIVITY, AND INVESTMENT

Priority Maintain or increase industry profitability

Indicator	Data	Status	Source
8.1.1 Rate of return			
8.1.1a Rate of return on capital, excluding capital appreciation, using a three-year rolling average	1.1% (average per farm)	●	ABARES 2019-2020 to 2021-2022

Data explained

8.1.1a

Calculated using data obtained from the annual Australian Agricultural and Grazing Industries Survey (AAGIS). The figures provided represent the average per farm. The rate of return has directionally increased since the last reporting period due to easing of the east coast drought impacts to on-farm returns for the corresponding period.

■ PROFITABILITY, PRODUCTIVITY, AND INVESTMENT

Priority Maintain or increase contribution to the Australian economy

Indicator	Data	Status	Source
8.2.1 Contribution to Australian economy			
8.2.1a Gross value (A\$) of agricultural production for sheepmeat	\$4,425M	●	ABS FY2021
8.2.1b Gross value (A\$) of agricultural production for greasy wool	\$2,645M	●	ABS FY2021

Data explained

8.2.1a

Sheepmeat production value declined by 9% over the reporting period

8.2.1b

Wool production value declined by 4% over the reporting period

■ PROFITABILITY, PRODUCTIVITY, AND INVESTMENT

Priority Increase productivity

Indicator	Data	Status	Source
8.3.1 Productivity			
8.3.1a Total factor productivity average annual growth rate	0.00%	●	ABARES 1999-2000 (base year) to 2020-2021
8.3.1b % change in Dual Purpose Plus (DP+) Index	+3%	●	MLA Lambs born in 2021

Data explained

8.3.1a

Total Factor Productivity (TFP) is expressed as average annual % growth over a given period and is relative to change from the base year.

Unadjusted TFP annual growth rate (0.0%) is equal to the climate-adjusted TFP (0.0%) in 4.2.1a.

The parity in measures means that zero additional amount of productivity growth has been required to offset the effects of the trend towards poorer climatic conditions over the reporting period.

8.3.1b

Indices incorporate economically important traits so that genetic gain in one trait is not made in isolation from other traits. This index has increased from 152 to 157 after the 2020-2021 drop. This demonstrates that genetic gain towards a Dual-Purpose Merino breeding objective has been achieved. The data refers to lambs born in 2021.

New selection indices will be reported for Merinos from May 2023 and the current Dual Purpose index will be phased out in 2024.

The SSF will consult with MLA about how to best track genetic progress using the most appropriate index after this time.

■ PROFITABILITY, PRODUCTIVITY, AND INVESTMENT

Priority Encourage innovation

Indicator	Data	Status	Source
8.4.1 Investment in research, development and adoption (RDA)			
8.4.1a \$A invested in RDA per annum	\$21.8 million (sheepmeat)	●	MLA FY2022
	\$32.7 million (wool)	●	AWI FY2022

Data explained

8.4.1a

A sum of levies and matched funds directed to Australian sheepmeat and wool Research and Development Corporations. Since the last reporting period, investment in sheepmeat RDA has fallen by 13% and investment in wool RDA has grown by 16%.

Lamb in pole position to capture premium markets

For two decades at Holbrook, New South Wales, prime lamb producer Tom Bull and his family have followed a simple motto to ensure business success and long-term sustainability: ‘Identify and multiply’.

The Bull family’s business, Lambpro, identifies sires and ewes from Australia and New Zealand with the ability to produce more kilograms of premium eating quality lamb per hectare, and multiplies their genes using artificial insemination, embryo transfer and natural mating.

Over the past 12 months, Lambpro has joined just over 12,000 performance-tested ewes and sold 3500 rams to producers from northern NSW and Victoria down to Tasmania and across into South Australia.

Its highly marbled Kinross Station Hampshire Down product retails for more than \$100/kg in a number of global markets.

Tom says there are three drivers of production of lamb per hectare – stocking rate, lambing percentage and turnoff weight. Successful lamb operations achieve a balance of these three components to maximise profitability.

“Most of our clients maximise the growth rate of all lambs through breeding and nutrition and then use grain finishing to enhance meat quality and take lambs from 40+kg to 65kg live weight.

“This allows lambs to be taken out of the pasture system and producers to run the maximum amount of ewes,” Tom said.

Tom quotes beef brands such as Angus and Wagyu as doing an ‘exceptional job’ in aligning breeding, finishing and product branding, and says there’s no reason why lamb can’t do the same.

“The high-end lamb market is still relatively immature, and it’s targeted at a small, affluent demographic within the global meat market, more tailored to entertaining, food service, or high earners.

“Once we see high-end, branded lamb products in the mainstream marketplace, you’ll see a catalyst for change like we saw in beef, and plenty of people will start to control genetics and feed to produce large amounts of lambs.

“We’re positioning our clients for that to happen by 2030.”

Lambpro has five different breeding programs – the Primeline Maternal, the Primeline Shedder (a new Primeline variation aiming to eliminate wool), Hampshire Down terminal siring lambs marketed under the Kinross Station brand, Poll Dorset and a hybrid terminal consisting of Hampshire, Southdown, and Dorset.

Supplying a high quality, consistent product year-round requires large amounts of data, Tom said, and a ‘customer mindset’ which is paramount to the longevity of any agricultural business.

“There has been real progress in Australian processing plants to measure lamb’s eating quality as indicated by marbling (intramuscular fat or IMF) and tenderness, and this data is collected on every kill and passed back to clients,” he explained.

“MLA also produced some really good data looking at IMF, linking that to MSA Score and then linking it to the data on consumers’ willingness to pay for a premium eating experience.



Tom and Phoebe Bull and children at Kinross Station, Holbrook, New South Wales - from Rare Medium online

■ MARKET ACCESS

Priority Ensure positive market positioning and access

Indicator	Data	Status	Source
9.1.1 Value of product			
9.1.1a AU value share (%) of sheepmeat exports	45.0%	●	MLA 2022
9.1.1b AU value share (%) of greasy wool exports	75.5%	●	AWI 2022

Data explained

9.1.1a and 9.1.1b

A value-based expression of Australia's share of global exports. In both cases, Australia's value share increased. Australian sheepmeat value share increased by 4% and wool value share increased by 17%.

Indicator	Data	Status	Source
9.1.2 Access to markets			
9.1.2a The non-tariff barrier (NTB) impact on trade (sheepmeat and offal) in \$A	\$881 million	●	MLA 2022
9.1.2b % value share of Australian sheepmeat, sheep offal and live sheep exports covered by one or more preferential trade agreements (PTA)	75.5%	●	MLA 2022
9.1.2c % value share of Australian greasy wool exports covered by one or more preferential trade agreements (PTA)	83.1%	●	AWI 2022

Data explained

9.1.2a

Non-tariff barriers (NTBs) are trade barriers that unnecessarily restrict exports through mechanisms other than the simple imposition of tariffs, such as import licences and onerous sanitary regulations. The indicator is expressed in terms of the economic impact NTBs have on export value. The NTB impact has directionally reduced over the reporting period by 1%.

Further alleviation of the impact of NTBs is in the pipeline, with confirmation of extensions to shelf-life for chilled sheepmeat pending in a number of Middle East destinations.

9.1.2b and 9.1.2c

Preferential trade agreements (PTAs) are international treaties that remove or reduce tariffs and quotas beyond those agreed via the World Trade Organisation. Free trade agreements and regional trade agreements are the most common examples of PTAs.

Although the figures have directionally declined, coverage fluctuates according to export destination volume and value in a particular year. Two recent trade agreements are yet to be reflected by this coverage. The Australia-India Economic Cooperation and Trade Agreement entered into force on 29 December 2022, whilst the Australia-UK Free Trade Agreement was officially approved by UK parliament in March 2023.

Sheepmeat and wool exported in 2023 under these agreements will add to the preferential percentage and will be reflected in the 2024 report.

MARKET ACCESS

Priority Guarantee product integrity and safety

Indicator	Data	Status	Source
9.2.1 Compliance with product integrity & safety standards			
9.2.1a Proportion (%) of the wool clip that is produced with a voluntary product integrity scheme	13.9%	●	AWEX FY2022
9.2.1b Compliance rates (%) for chemical residues in sheepmeat	99.45%	●	DAFF National Residue Survey 2021–2022

Data explained

9.2.1a	9.2.1b
<p>Voluntary product integrity schemes include Authentico, ZQ Merino, Better Choices, Responsible Wool Standard (RWS), EU-Ecolabel, SustainaWOOL, and others. The percentage of the clip associated with one of these schemes has directionally increased This is a positive change albeit off a small base.</p> <p>The figure is calculated using first-hand offered bales with P and D Certificates only. It excludes rehandled wool such as bulk-class and interlots.</p>	<p>The National Residue Survey (NRS) within the Department of Agriculture, Fisheries and Forestry (DAFF) monitors residues in animal products through various random and targeted testing programs. The compliance rates have remained steady over the reporting period.</p>



CEO Will Barton and his processing team at Gundagai Meat Processing, Gundagai, New South Wales

The Sheep Sustainability Framework

Activities for FY2024

The SSF will begin FY2024 by initiating the activities aligned with the three strategies identified in the FY2022-FY2024 SSF Strategic Plan.

STRATEGY	ACTIVITY	TIMING
Stakeholder engagement	2nd consultative committee meeting	Q2 FY2024
	2nd industry forum	Q3 FY2024
Data collection and reporting	Completion of written protocols for data collection	Q1 FY2024
	2nd wave data collection of the national producer survey	Q3FY2024
	Launch of fourth annual update	Q3 FY2023
Continual improvement	ABSF and SSF combined steering group meeting	Q1 FY2024
	Launch of data dashboard	Q2 FY2024
	Materiality study	Q1-Q4 FY2024



Learning to walk in a pure Merino onesie

Appendix

Governance

Sheep Producers Australia (SPA) and WoolProducers Australia (WPA) are the peak industry councils (PIC) for the sheepmeat and wool industries, respectively. These bodies lead the Framework and have the mandate to take the SSF outputs and use them as supporting evidence to set relevant industry policy.

Rural Research and Development Corporations (RDCs) Australian Wool Innovation (AWI) and Meat & Livestock Australia (MLA) support the SSF by providing funding along with strategic and secretariat support.

The first Sustainability Steering Group (SSG) designed and developed the Framework. The SSG is responsible for leading the Framework by setting the strategy and implementation plans and representing and promoting

the SSF in relevant settings. The SSG features strong representation across sheep-producing regions and the wool and meat value chain.

A Consultative Committee, made up of representatives from these groups, was formed in late 2022 to provide ongoing input to the Framework. An Industry Forum cohort was also formed in early 2023 to discuss issues specific to internal stakeholder groups. The SSF will hold one Consultative Committee meeting and one Industry Forum per annum. Expert working groups will also be convened when necessary.

The industry will report progress against the SSF annually. Note that separate performance indicators will be included for the sheepmeat and wool sectors as relevant and where data exists.



Near Canberra, Australian Capital Territory

Principles

A set of principles will guide development and implementation of the Framework:

1. Transparency

The industry will provide an open and honest picture of practice and performance (including improvement, no change or decline), using the most appropriate and robust data available.

2. Accountability

The industry is accountable for its practices and performance as demonstrated via the Framework, and is committed to continuous improvement.

3. Inclusivity

The constructive views and feedback from industry (including producers, processors and other value chain participants), customers, retailers, special interest groups, government and investors as to how industry can improve practice and performance are valued and considered.

4. Credibility

Decisions on Framework design will be made with consideration of topics identified as important

or material by the industry and its stakeholders. Reporting against Framework priorities and indicators is based on robust evidence.

5. Practicality

The Framework works within the industry's scope of influence to make changes that encourage improvement and adoption of best practice. The indicators can or have the potential to be monitored and managed. The Framework should harmonise with other relevant industry strategies to avoid duplication or contradiction.

6. Relevance

The Framework's priorities and indicators are aligned with topics identified as important or material to the industry and its stakeholders, and are within the industry's scope of influence. The Framework will adapt over time to remain relevant. It will be useful and highlight areas for improvement.



Lake George, New South Wales

Consultation

Stakeholders from across the sheepmeat and wool industry value chain were consulted by the Sheep Sustainability Steering Group to develop this Framework.

Comprehensive engagement with stakeholders was required to help build a Sheep Sustainability Framework that is widely supported by stakeholders and fit for purpose. The consultation approach was based on the principles of the International Association of Public Participation (IAP2). The approach was further informed by the AA1000 Stakeholder Engagement Standard (AA1000SES). This is a broad framework used in the assessment, design, implementation and communication of quality stakeholder engagement.

Stage 1 of consultation (Develop) involved taking draft elements of the Framework to key industry stakeholders, including policy groups, advocacy groups and service providers, as well as the Department of Agriculture, Water and the Environment. This stage was completed in March and early April 2020 and its findings were used to shape the First Draft Sheep Sustainability Framework. In general, stakeholders were very supportive of the initiative and generously gave their time to provide perspectives and insights.

Stage 2 (Design) involved taking the First Draft Framework to both industry and external stakeholders. They were given the opportunity to provide feedback at a consultation forum or online. Additional meetings were held with members of the wool value chain and technical experts from Australian Wool Innovation and Meat & Livestock Australia. The consultation provided substantial input which was used to develop the Second Draft Framework.

In Stage 3 (Decide), the Second Draft was taken to public consultation conducted online. The input from this stage, together with input from technical experts on the indicators and metrics was used to create this final Sheep Sustainability Framework.



Phillip Island, Victoria

Full list of material topics and scopes

Material topics reflect a sector’s significant economic, environmental, and social impacts, or substantively influence the assessments and decisions of stakeholders.

The topics and scopes below were identified and ranked during an independent materiality assessment undertaken to inform development of the Framework. They form the basis of the Australian sheep industry’s materiality matrix.

In line with good practice, the matrix will be reviewed and updated in FY2024.

Sheep industry material topics and scopes

PRIORITY	TOPIC	SCOPE
Highly material	Animal husbandry and handling	Animal management and handling practices including shearing, mulesing, lamb marking, use of pain relief and antimicrobials, euthanasia on farm and slaughter practices at processing. Treatment and compliance with regulations and industry guidance on farm, in transit and at destination.
	Animal wellbeing and welfare	Animal welfare including access to food and water, provision of shelter and space, management of disease, and lamb survivability on farm, in transit and at destination.
	Biodiversity	Vegetation and land clearing, forestation and carbon sequestration, management of invasive species, the protection of native plant and animal species, genetic diversity, natural ecosystems and ecosystem services.
	Water security	Water withdrawal (extraction) and consumption, and responses to water scarcity.
	Greenhouse gas emissions	Scope 1, 2 and 3 emissions and mitigation of emissions in the medium and longer term.
	Soil health and pasture management	Soil nutrient and sediment loss, erosion and pasture management, soil carbon.
	Water quality	Water, water stewardship, waterway management, water re-use, wastewater treatment and discharges to watercourses.
	Chemicals	Use of fertilisers, herbicides and pesticides on farm, including withholding periods and the management of restricted substances and hazardous chemicals on farm and in processing.
	Safety	A safe work environment for workers including farm owners, direct employees, seasonal workers and contractors.
	Biosecurity	Managing the risk of transmission of infectious diseases, invasive pests or weeds.
	Food safety and quality	All aspects of food safety, quality, product integrity and compliance with standards.
Material	Labour standards, human rights and employment	Labour practices and decent work for all workers including freedom of association and freedom from modern slavery. Protection of human rights across the workforce including non-discrimination, diversity and indigenous employment.
	Human health and nutrition	Nutrition and food security including access to safe, sufficient and nutritious food.
	Livelihoods	Productivity, profitability, market access, critical mass in processing, and equitable creation of value across the industry value chain.
	Adaptation and extreme weather events	Responding to and preparing for extreme weather and events such as droughts, floods and fires — expected to increase with climate change.
	Waste	Circular management of multiple solid and liquid waste streams including fibre recovery, food waste, packaging and trade waste.
	Occupational health	Healthy working conditions for all workers and farm owners including mental health, occupational illnesses and exposure to chemicals.
	Responsible sourcing	Sourcing of raw materials, including traceability and certifications and compliance with accepted standards, including sustainability-related standards and verification.
Important	Economic contribution	Industry contribution to national and regional development through export income and employment.
	Energy	Energy consumption, resource efficiency and the use of renewable energy.
	Feed sourcing	Sourcing of animal feed and associated impacts of feed production (e.g. water stress, vegetation removal or labour standards).
	Access to labour	Access to people with the appropriate skills, knowledge, training and experience to perform the activities needed to run sheep industry businesses, including modernisation skills.

Acronyms

AAGIS	Australian Agricultural and Grazing Industries Survey
AAWCS	The Australian Animal Welfare Certification System
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
ABSF	Australian Beef Sustainability Framework
AMPC	Australian Meat Processor Company
AR4	Assessment Report 4 conducted by the IPCC in 2007
ASBV	Australian Sheep Breeding Values
ASEL	Australian Standards for the Export of Livestock
AU	Australia
AWEX	Australian Wool Exchange
AWI	Australian Wool Innovation
CO ₂ e	Carbon dioxide equivalents
COP	Conference of the Parties
COVID-19	Coronavirus disease
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSRD	Corporate Sustainability Reporting Directive
DAFF	Department of Agriculture, Fisheries and Forestry
dLUC	Direct Land Use Change
EBW	Early Breech Wrinkle
EID	Electronic Identification
EMI	Eastern Market Indicator
EU	Europe
FMD	Foot and Mouth Disease
FTA	Free Trade Agreement
GHG	Greenhouse Gas
GWP ₁₀₀	Global Warming Potential of a greenhouse gas is its ability to trap extra heat in the atmosphere over 100 years relative to carbon dioxide
HLN	Holbrook Landcare Network
HSCW	Hot Standard Carcase Weight
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardisation
IWTO	International Wool Textile Organisation
LCA	Life Cycle Assessment
LGAP	Livestock Global Assurance Program
LTEM	Lifetime Ewe Management
LU	Land Use
LUCF	Land Use Change and Forestry
LW	Liveweight
MAT	Moving Annual Total
MLA	Meat & Livestock Australia
NCA	Natural Capital Accounting
NLIS	National Livestock Identification System

NGGI	National Greenhouse Gas Inventory
NRM	Natural Resource Management
NRS	National Residue Survey
NSQA	National Saleyards Quality Assurance
NTB	Non-Tariff Barrier
NWD	National Wool Declaration
PTA	Preferential Trade Agreement
RDA	Research, Development and Adoption
RDC	Research and Development Corporation
RWS	Responsible Wool Standard
SDG	Sustainable Development Goals
SPA	Sheep Producers Australia
SSF	Sheep Sustainability Framework
SSG	Sustainability Steering Group
TBD	To Be Determined
TFP	Total Factor Productivity
UN	United Nations
WEC	Worm Egg Count
WOAH	World Organisation for Animal Health (formerly OIE)
WTP	Willing To Pay
WPA	WoolProducers Australia



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Kangaroo Island, South Australia



**SHEEP
SUSTAINABILITY
FRAMEWORK**

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