SHEEP PRODUCERS AUSTRALIA

WOOLPRODUCERS AUSTRALIA

SHEEP SUSTAINABILITY FRAMEWORK

Annual Report 2022

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About This Report

The Sheep Sustainability Framework was launched in 2021. This is its first 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 sheep meat and wool industry through the peak industry councils 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), Meat & Livestock Australia (MLA) and Australian Meat Processor Corporation (AMPC) provide resources in support of the SSF.

Consultation

Consultation with stakeholders is instrumental in ensuring the SSF is robust and 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 will support 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 sheep meat and wool industry is a responsible source of food and fibre

- Sheep meat and wool businesses will have access to the resources, customers, investment, and markets they need to grow and prosper into the future

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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.

Initial Framework Boundary

| Farms and feedlots | Transport | Saleyards | Live export | Wool transport & auctions | Domestic processors (meat & wool) | Overseas processors | Domestic & overseas customers |
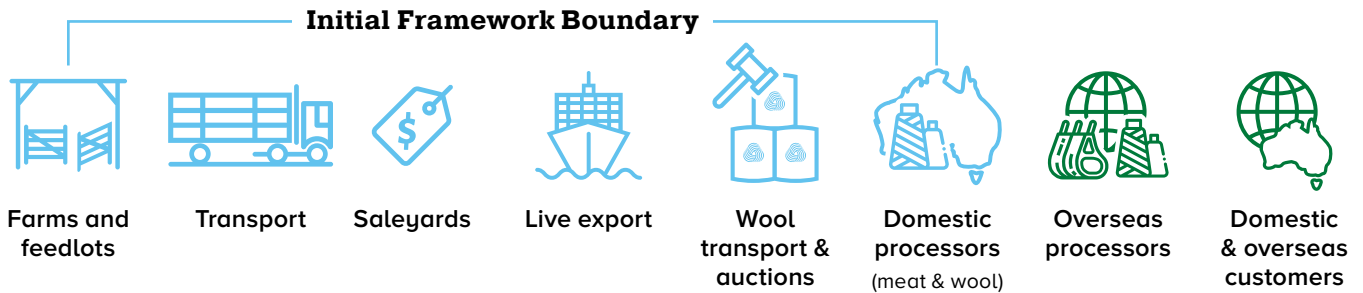
The SSF aims to:

- Promote industry transparency with trading partners, customers, and the community
- Better inform investment in continuous 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

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SSF Board Chair's Letter

Lucinda Corrigan

Independent Chair
SSF Board
Director, Rennylea Pastoral Company

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

In late 2021, the SSF Board were delighted to welcome SSF Steering Group Chair, Dr. Scott Williams and four new Steering Group members. The current Steering Group brings insights from both private and corporate production, processing, finance, agribusiness strategy, agricultural communications, 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 the continuous improvement of the SSF across the value chain.

A key purpose of the SSF is to bring transparency to the environmental, social and governance (ESG) issues that have been identified as material to our industry. Transparency is the practice of being open and honest with others, no matter how challenging, and being transparent builds trust with both our customers and our suppliers.

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.

This report features two firsts for the Australian sheep industry. A sheep meat and wool Life Cycle Assessment (LCA) has been conducted for the Australian flock, and satellite imagery has been harnessed to measure and display vegetation changes across our sheep-grazing regions. These instruments will be used to measure, monitor, and report key emissions intensity and ground cover metrics into the future. The deep insights generated from these projects represent an important milestone in better understanding the impacts on and of our 234-year-old industry.

It is clear to me that the purposeful leadership shown by Sheep Producers Australia and WoolProducers Australia will secure the sustainable future of the iconic Australian sheep meat and wool industry.

Lucinda Corrigan

Lucinda Corrigan

The Sheep Sustainability Framework Board

Bonnie Skinner

CEO, Sheep Producers Australia

Jo Hall

CEO, WoolProducers Australia

Helen Carrigan

Director, WoolProducers Australia

Jamie Heinrich

Director, Sheep Producers Australia

Edward Storey

President, WoolProducers Australia

Ben Thomas

Director, Sheep Producers Australia

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SSF Steering Group Chair's Letter

Dr. Scott Williams

Chair, SSF Steering Group
Director, Forest Hill Consulting

The delivery of this first Annual Report of the Sheep Sustainability Framework represents a major milestone in the evolution of this most important initiative. As a relatively new Chair, I have been very impressed by the robust and comprehensive nature of the Framework.

I have come to appreciate the complexity and challenges in identifying suitable metrics and collecting the data. Yet these challenges should not be a surprise; industry sustainability or Environmental and Social Governance (ESG) reporting is very much in its infancy, and all sectors are still learning how to do it well.

The process of producing the Annual Report has prompted those of us who are involved with it to think again about the purpose of the Framework. We have been reminded that the Framework has been developed to report, as objectively as possible, the sheep industry's sustainability credentials. Neither the Framework nor the report are best practice manuals or policy statements. In keeping with our Principles, results are published with full transparency. Case studies throughout this report provide a real-life dimension to the statistics.

I wish to thank the previous Chair of Sustainability Steering Group, Professor Bruce Allworth, for his hard work and wisdom to bring the Framework to fruition. I would also like to thank the very capable members of the original and current SSGs for their input to the development of both the Framework itself and this first annual report. Finally, I wish to acknowledge the very hard work done by the MLA Sheep Sustainability Manager, Sarah Hyland, and the support provided to her by Bridget Peachey of AWI.

Dr. Scott Williams

The Sheep Sustainability Framework Steering Group

Belinda Dexter

Australian Lamb Company

Ed Dunn

MH Premium Farms

Michael Field

T.A. Field Estates

Deanna Lush

AgCommunicators Hillydale Farms

Ian McColl

NSW Farmers

Lachlan Monsbourgh

Rabobank

Anna Playfair-Hannay

Woolworths

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The Framework on a Page

Vision

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

Definition

Sustainable sheep meat and wool production means producing sheep meat 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 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

**The First
Year In
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The First Year in Summary

The Sheep Sustainability Framework (SSF) was launched in April 2021. Since that time, the SSF has administered ongoing data collection projects, formulated a strategic plan, undergone an audit and continued to collaborate and develop relationships with valued stakeholders.

The SSF Strategic Plan F22-F24

Developed by the Board and Steering Group, the aim of the SSF Strategic Plan is to embed the SSF into the sheep meat 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.
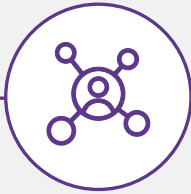
Stakeholder Engagement

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

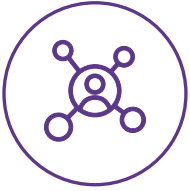**We actively appraise and improve the framework and ourselves.**

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

Supporting Activities

- SSF Review
- Keeping Up with Contemporary Thinking
- Framework Fellowship

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**The First
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Activity to Date

Stakeholder Engagement

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

Two strategies have been developed to inform and activate this approach.

THE STAKEHOLDER ENGAGEMENT STRATEGY

Identifies priority stakeholder groups, key messaging, and best opportunities to achieve impact through active consultation and strengthened relationships.

THE COMMUNICATIONS STRATEGY

Identifies target audiences, effective messaging and best communication channels to raise awareness, improve understanding and promote the activity and value of the SSF.

Data Collection and Reporting

The mainstay 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 efficient and collaborative data gathering projects aim to deliver benchmark data for a total of **16 SSF metrics**.

THE NATIONAL PRODUCER SURVEY

Undertaken by AWI and MLA, 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.

Once finalised, the survey results will provide high quality benchmark data for the ABSF and SSF. The insights will demonstrate sustainable practices, identify areas for improvement and monitor progress over time.

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 2-3 years to track industry on-farm progress in a sound, consistent and comparable way.

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Data Collection and Reporting

LIFE CYCLE ASSESSMENT OF THE AUSTRALIAN FLOCK

AWI and MLA commissioned a Life Cycle Assessment (LCA) to determine the greenhouse gas (GHG) emissions from both Merino and non-Merino sheep in the Australian flock from 2005 to 2020.

The LCA also models a number of emissions reduction pathways to predict the impacts on net GHG emission over time.

This landmark study provided deep insight into both industry trends to date and paths for the future. This work stimulates the thinking on multiple fronts for the industry as it grapples with the emission reduction task ahead.

SEASONAL MAPPING SHEEP-GRAZING REGIONS

Borrowing from the ABSF, the SSF can now benefit from 30 years of satellite data and remote sensing science to map and evaluate the condition of Australian sheep-grazing land.

The sheep-specific seasonal ground cover dashboard shows rainfall trends and the proportion of bare ground, green and non-green ground cover over time.

Achieving sound levels of ground cover is well recognised as a way to improve soil health, reduce erosion, aid in maintaining and improving biodiversity and increasing subsequent carbon storage.

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

AUSTRALIAN BEEF SUSTAINABILITY FRAMEWORK COLLABORATION

The SSF is strengthening its relationship with the ABSF by partnering on data gathering projects, providing consultation on framework matters, sharing insights and offering collegiate support.

AUSTRALIAN AGRICULTURAL SUSTAINABILITY FRAMEWORK (AASF) CONNECTION

Coordinated by the National Farmers' Federation, the AASF provides a central source of information about Australian agricultural sustainability. The SSF has assisted in the design and development of the pilot framework by participating in consultation at various project stages.

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**The First
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ABSF Steering Group Chair Mark Davie and SSF Steering Group Chair Dr Scott Williams.

Our Industry at a Glance

Flock Size
74.3 million
head of sheep

MLA Industry Projections 2022

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

Sheep meat
$3.9 billion
value of sheep meat exports

MLA Industry Projections 2022

692,000 tonnes cwt
(carcase weight) lamb and mutton produced

MLA Industry Projections 2022

431,000 tonnes swt
(shipped weight) lamb and mutton exported

MLA Industry Projections 2022

131,488
people employed in the red meat production sector

MLA State of the Industry 2021

Wool
$3 billion
value of greasy wool forecast in 2022/23

AWI Strategic Plan 2022 - 2025

321 million kg
greasy wool production forecast for 2022/23

AWI Strategic Plan 2022 - 2025

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

Sheep meat processing
21.6 million lambs
processed

MLA Industry Projections 2022

6 million sheep
processed

MLA Industry Projections 2022

25 kg
average national lamb carcase weight

MLA Industry Projections 2022

30,900
people employed by red meat processors

AMPC Annual Report FY2021

Australia supplies
39% of the world's greasy wool *(Trust in Australian Wool 2021)*
70% of the world's apparel wool *(Wool 2030)*
38% of the world's sheep meat *(MLA State of the Industry 2021)*

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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 sheep meat. 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 2000 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 three Research and Development Corporations (RDCs) — Australian Wool Innovation (AWI), Meat & Livestock Australia (MLA) 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 regeneration of 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.

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 sheep meat 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

Classers' 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 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.

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Operating Environment

Greenhouse Gas Emissions

The importance of the Paris Agreement's 1.5°C warming target was reiterated at the 2021 COP26 conference.

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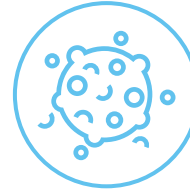
Climate Risk

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

Whilst 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.

Disease Risk

Global transmission of diseases such as foot and mouth disease is by far the most 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.

Global Supply Chain Disruption

Increasing international instability, sovereign risk issues and the ongoing impacts of COVID-19 mean that supply chains and logistics disruptions remain a major hurdle for the sheep industry.

The issue covers both the difficulty in getting product to the desired market and the cost of freight. Over 2018–21 there was an increase in average on-berth hours and average idle hours at Australian ports. This has led to delays in shipping and increases in costs, both from the shipping companies themselves and road freight companies. For the sheep industry, this has been felt through higher prices, greater uncertainty, and delivery delays.

Labour Shortages

In 2022 and 2023, labour shortages are expected to be an area of significant concern for the sheep industry across the entire supply chain.

The supply of labour will be tight - from farm hands, farm managers and shearers, through to processing employees, truck drivers and a range of off-farm roles.
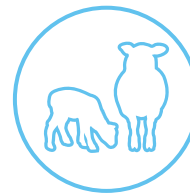
Feedlotting

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.

The SSF will need to evaluate how best to track this growing practice as part of the *Caring for our Sheep* theme.

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Commitment to Sustainable Agriculture

The Australian Government is investing $66.1 million over 2018-2025 to deliver the Agriculture Stewardship Package.

The package aims to incentivise adoption of improved on-farm land management practices and develop a mechanism where farmers are rewarded for their efforts in delivering biodiversity and sustainability services that benefit their farms and the broader community.

Industry Responsibility the key to Building Community Trust in Agriculture

AgriFutures Australia research has revealed public trust in rural industries is driven primarily by environmental responsibility, responsiveness to emerging issues, and the industry's value to Australia.

Animal Health Australia and WoolProducers Australia's *Trust in Australian Wool* campaign is a knowledge sharing initiative designed to help strengthen trust with consumers who drive demand for Australian wool.

The SSF is an important tool to demonstrate global sustainability leadership, how industry is responding to community expectations, its environmental responsibility, and the value it creates for Australian communities.

The Pursuit of Free Trade

High-quality, comprehensive free trade agreements (FTAs) play an important role in enhancing the international competitiveness of Australian exports.

Australia has signed new FTAs with the United Kingdom and India within the last six months, delivering benefits for the Australian sheep industry.

There are four more FTAs currently under negotiation including the Australia-European Union Free Trade Agreement.

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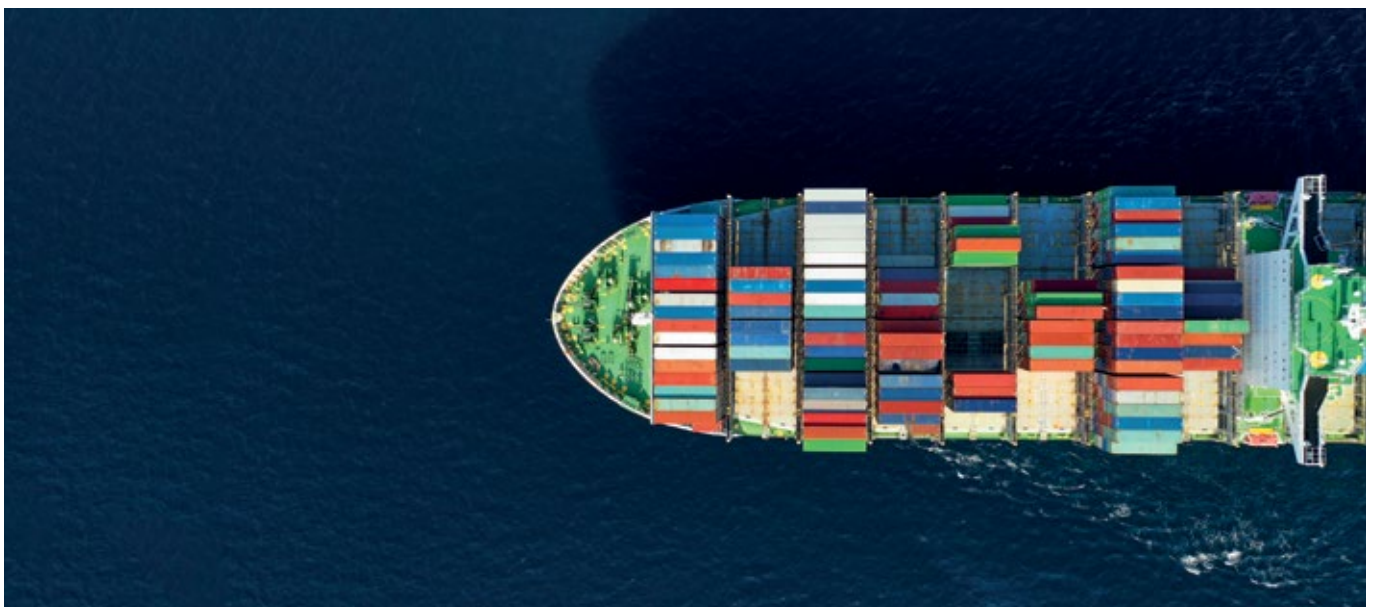
Eco Awakening

The push towards environmental and ethical sustainability has accelerated significantly since the pandemic as consumers now see their purchase decisions as an agent for change.

This 'eco awakening' has important implications for wool and how it is positioned as a natural, environmentally friendly fibre choice.

Science-backed evidence to support product claims is paramount as is ensuring circularity modelling is not biased by vested interest.

Don't Promise, Prove

The European Union Farm to Fork program and due diligence laws will dramatically increase scrutiny of the on-farm sustainability impacts of products exported to the EU.

The recent new Corporate Sustainability Reporting Directive (CSRD) will make EU businesses more accountable by obliging them to disclose their impact on people and the planet. The CSRD aims to end greenwashing and lay the groundwork for sustainability reporting standards at a global level.

Dress Code Change

The global pandemic has accelerated the ongoing acceptance of casual workwear in the business world. Workers are more likely to select apparel for comfort and casual styling rather than structured formal workwear such as suiting.

While this shift has impacted the industry's traditional suiting market, wool's natural stretch, breathability, and comfort means that it is well placed to meet this evolving consumer need.

Casual and athleisure segments are forecast to enjoy continued growth in the foreseeable future.

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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.

This informed development of the Framework, including establishing the sustainability priorities. The assessment involved a desktop review and testing topics with industry stakeholders. 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**

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Influence on stakeholder decisions

HIGHLY MATERIAL

MATERIAL

IMPORTANT

Animal wellbeing & welfare

Animal husbandry & handling

Labour standards, human rights and employment

Food safety & quality

Biodiversity

Livelihoods

Biosecurity

Responsible sourcing

Water quality

Adaption & extreme weather events

Safety

Water security

Occupational health

Soil health & pasture management

Waste

Chemicals

Human health & nutrition

Economic Contribution

Greenhouse gas emissions

Access to labour

Energy

Feed sourcing

Impact of the Sheep Meat & Wool Industry

Figure 1. Materiality matrix for the Australian sheep industry.

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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.

Priority or leading
contribution/impact

Supporting
contribution/impact

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

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**The Sheep
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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 continuous 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 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

Indicators and Metrics

This is the first Annual Report for the SSF. In 2021, the SSF launched with 60 indicators and benchmark metrics data for just over 50% of them. For this report, the classes of metric data for indicator reporting are as follows:

Reported Figures

- Second wave data – changes are identified as directional only. Significant differences are not investigated or calculated at this stage of tracking.

- Benchmark data - for now quantifiable metrics.

Work in Progress

At the time of publishing, the data for the National Producer Survey are still being collected from sheep producers and wool growers. The survey data will be reported in an SSF update to be released in Q2 of FY2023.

Metrics and 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.

Metrics Removed and Changed

For this report, some metrics have been removed. There are reasons for their removal. For example, it has become clear that benchmark metric data will not be available in the short to medium term due to program cancellation; that the indicator has lost relevance over the past year or that an improved measure or data set has come to light. Should circumstances change, these metrics can be reintroduced to the SSF.

On recommendation from the Steering Group and on approval from the Board, the following metrics have been removed from the framework:

- *2.1.3a % flock traceable via National Livestock Identification System* – removed. National data is unavailable. An alternative metric with supporting data has been identified and reported.

- *3.2.1b % greasy wool sale lots exceeding EU label criteria* – removed. Data are unavailable.

- *3.2.2a % producers who have a plant pest management plan* – removed. The metric is no longer considered to be material.

- *7.1.1b % of global respondents who believe that Australian sheep are farmed and raised in a humane manner* – removed. An alternative metric with supporting data has been identified and reported.

- *9.2.1 % compliance with Livestock Global Assurance Program (LGAP)* – removed. Data are unavailable because the program is on hold.

Key for Data Status

Second wave data	Directional Improvement	🟢
	Holding Steady	🟠
	Directional Decline	🔴
Benchmark Data Point		⭐
Work in Progress		⏳
Indicator, Metric or Data to be identified		🔍

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Caring for
Our Sheep

Caring for Our Sheep

Material Issues
- Animal husbandry and handling
- Animal wellbeing and welfare

Click to learn more

Animal Care and Handling	
Priority	Reduce, refine and replace painful husbandry procedures

Indicator	Data	Status	Source
1.1 Incidence of mulesing in Australian flock			
1.1.1a % producers who mules their flock	Merino	⧗	National Producer Survey 2022
	Non-Merino	⧗	
1.1.1b % wool declared as non-mulesed / ceased mulesed	Merino 15.3%	●	AWEX FY2021
	Non – Merino 39.6%	●	

Data Explained

1.1.1a	1.1.1b
To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.	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 mulesed.
	The NWD is a voluntary scheme where not all wool is declared. For FY2021 :
	• 78.1% of all Merino wool was declared
	• 65.9% of all non-Merino wool was declared
	The percentage of non-mulesed/ceased mulesed bales offered is directionally higher than for FY2020.

What is the National Wool Declaration?

For producers who have made the decision to stop mulesing, completion of the National Wool Declaration is an important step in demonstrating their practices to customers along the supply chain. Price premiums are well documented for non-mulesed wool. Whilst Australia is the largest exporters of non-mulesed wool, there needs to be an increased supply of declared non-mulesed wool so that AWEX can accurately report on these premiums. If non-mulesed wool is not declared, it will not be possible to develop a market for the product or report pricing accordingly. For producers who continue to mules, it is possible to declare the use of pain relief products at mulesing. Producers who continue to mules and complete the National Wool Declaration are demonstrating recognition of customer requests for increased information and transparency.

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Indicator	Data	Status	Source
1.1.2 Use of pain management associated with mulesing, castration and tail docking			
1.1.2a % producers who use pain management at mulesing		⧖	National Producer Survey 2022
1.1.2b % producers who use pain management at castration		⧖	National Producer Survey 2022
1.1.2c % producers who use pain management at tail docking		⧖	National Producer Survey 2022

Data Explained

1.1.2 a, b and c

To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.

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		⏳	National Producer Survey 2022
1.2.2 Adoption of best practice management			
1.2.2a % producers who have completed Lifetime Ewe Management (LTEM) training	8.09%	🟢	AWI FY2021
1.2.3 Shearing welfare			
1.2.3a Total number of days per year spent by shearing trainers in woolsheds nationally	1064	🟠	AWI FY2021
1.2.4 Wild predator management			
1.2.4a % producers who use a wild predator management strategy		⏳	National Producer Survey 2022
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	58%	🟢	MLA FY2021
1.2.7 Wellbeing of live sheep during export			
1.2.7a % mortality on ships	0.21%	🟢	DAFF 2021

Data Explained

1.2.1a	1.2.2a
To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.	The % of producers who have completed LTEM evaluated at end FY2021. This is calculated by comparing the LTEM participants with AWI eligible wool levy payers. Participation in the six-day LTEM training program indicates a strong likelihood of best practice adoption.

1.2.3a	1.2.4a
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.	To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.

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Data Explained

1.2.5a	1.2.6a
Data to be identified.	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 FY2021, 14% more of the total sheep transacted were administered through an NSQA facility than in FY2020.
1.2.7a	
Data on mortality as reported to parliament. A total of 575,529 sheep were exported by sea in the calendar year 2021. The mortality figure is directionally lower than the 2020 rate.	

Australia's Changing Live Sheep Export Trade

Australia's live sheep export trade has fundamentally changed over the past few years, with industry initiatives, regulatory reviews and research all contributing to continual improvements in animal welfare outcomes.

The industry introduced a moratorium on shipments to the Middle East during the northern hemisphere summer, now a regulatory prohibition, minimising the risk of heat stress.

A further revision of the Australian Standards for the Export of Livestock (ASEL) has resulted in significant changes in requirements for pre-export preparation and management of sheep before and during the voyage. The space available for each animal on ships has increased, ventilation requirements have strengthened, and twin-tiered ships have been removed from the live sheep trade.

Research has identified a range of new animal welfare indicators which are now being measured daily on ships and demonstrate how livestock are dealing with environmental conditions. Automated environmental monitoring and data collection systems are now in use.

The analysis of sound, consistent and comparable voyage data ensures that exporters and regulators can make informed decisions. It also helps to move assessment of industry performance away from mortality rates alone. However, mortality rates are widely considered to reflect good animal welfare outcomes. They are also absolute, objective, and have been steadily dropping over the past decade as the industry has improved.

Since 2018, the industry and its regulatory framework has undergone significant change, demonstrating the industry's unwavering commitment to improve. The changes have proven impactful as evidenced by the industry's exemplary performance in animal welfare and wellbeing.

Veterinarian Dr. Holly Ludeman inspecting sheep at a quarantine feedlot in Western Australia to ensure they are healthy and fit for export. Photo credit: The Livestock Collective.

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 for Sheep (AAWSG).		⧖	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).	92%	★	AUS-MEAT 2021

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Data Explained

1.3.1a	1.3.2a
To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.	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 receival of livestock to the point of humane processing.
	AUS-MEAT administers an audit program to verify compliance and provides support and resourcing in its role as custodian of the standards. AUS-MEAT will institute corrective actions where breaches occur.

Caring for Our Sheep

The Australian sheep industry's 2021 materiality matrix (page 20) identifies animal wellbeing and welfare, and animal husbandry and handling as the two issues that have the greatest impact on the industry, **and** that most strongly influence stakeholder decisions.

This reflects growing expectations amongst the community, customers, retailers, and investors, of the way livestock are treated. Positive perceptions of the Australian sheep industry are driven through community confidence that the industry is continuously striving towards improved animal welfare.

The Sheep Sustainability Framework (SSF) has put the issue at its core, under the *Caring for our Sheep* theme.

Good health and welfare of livestock also provide productivity advantages. The outcome of improved husbandry practices and improved capacity to diagnose, prevent and treat disease contributes to an increase in individual animal and flock performance.

Good animal health management minimises the risk of transmission of infectious diseases, contributing to improved biosecurity that benefits the wider community. The maintenance of Australia's freedom from exotic disease status and the capacity to minimise the impact of endemic diseases is critical for the health and welfare of livestock, sustaining industry productivity, and preserving and growing market access, both domestically and overseas.

Professor Bruce Allworth, inaugural Chair, Sheep Sustainability Framework Steering Group.

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Feature – Caring for Our Sheep (cont.)

Director of the Fred Morley Centre at Charles Sturt University's School of Animal and Veterinary Sciences and former chair of the Sheep Sustainability Steering Group, Professor Bruce Allworth, said measures such as quantifying the use of pain relief are critical to greater transparency and trust.

"If we can measure our performance and provide solid data, we can demonstrate that our farming practices are in line with the expectations of our customers and build their trust."

Veterinarian and consultant Dr Andrew Whale said there has been a noticeable shift in the industry towards using pain relief at lamb marking time.

"I think for a long time now we have seen wonderful adoption of pain relief for mulesing and we are starting to see a trend toward people taking these measures for castration and tail docking," Dr Whale said.

"As a vet, I have definitely been dispensing more measures of pain relief for marking over the past three or four years."

He stressed the importance of minimising pain during husbandry procedures and said new methods and techniques are in development.

"There are some great further opportunities in this area, particularly in our ability to identify what level of pain animals are experiencing so that we know exactly what we need to do," he said.

The benefit for producers in using pain relief during routine husbandry procedures is not only for their own peace of mind, but also in meeting consumer expectations and protecting the product they market. Where producers engage in quality assurance programs that require pain relief, specific financial benefits can accrue.

Together, MLA and AWI invest in research and development of pain relief options for sheep, including $5.7m in the development of Numnuts®. Numnuts® is an easy-to-use ring applicator, combined with an injector that dispenses NumOcaine®, a fast-acting local anaesthetic to provide targeted pain relief for tail docking and castration of sheep. The product has been very successful and continues to be a great solution for sheep producers to manage pain.

Painful death and illness from flystrike remain a risk to sheep across most Australian environments, and AWI is committed to investing in practical solutions for producers for its prevention.

After a successful pilot, a new one-day workshop called SimpliFly™ is providing producers with information on the variety of different options and tools available to them.

"The workshop helps woolgrowers work through the implications on their production system of not only using, but also removing or changing the timing of, flystrike management tools, ensuring they can continue to effectively manage flystrike and protect and advance the health and welfare of their sheep," AWI General Manager Dr Jane Littlejohn said.

Of those who attended last year's pilot workshops, 97 per cent indicated it had given them the confidence to make changes to the way they manage flystrike.

"There was already a significant body of information available to woolgrowers about flystrike management, but until now it was in a disparate form and often highly technical rather than being readily implementable," said woolgrower Angela Schuster, whose team developed SimpliFly™ with AWI.

SimpliFly™ is one of several extension initiatives under AWI's Flystrike Extension Program (www.wool.com/flystrikeresources), supporting woolgrowers to improve the lifetime welfare of their sheep, reduce their reliance on mulesing and crutching, optimise chemical use and increase whole farm profitability through the provision of practical information and tools and access to accredited advisor support.

In the SSF, reducing, refining, and replacing painful husbandry practices; implementing best practice sheep management; humane on-farm euthanasia and preventing and managing disease are the foundational priorities for Caring for our Sheep and paramount to Australia's sheep production system.

Tim Leeming, a prime lamb producer from south western Victoria, said animal wellbeing is a fundamental part of his operation.

"If you look after your livestock and make sure that they're not suffering from pain, they're fit and healthy, and you're providing them the optimum nutrition at the right times of the year - it's a win-win situation."

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Case Study: Tim Leeming at Pigeon Ponds, VIC

Tim and Georgie Leeming, along with their two daughters, run 1800-hectare Paradoo Prime at Pigeon Ponds, in south-west Victoria, a self-replacing composite flock of 9500 ewes. Since building their enterprise from humble beginnings , the Leemings have always focused on consistently improving lamb survival and increasing reproductive efficiency within their flock.

"This has been achieved through a range of management practices including pain relief as well as others we have developed ourselves and shared across industry such as mob size reduction and precision lambing through short strategic joinings," Mr Leeming said.

"In terms of pain relief specifically, over the past five years we've used products such as Numnuts® which we were just so keen to use. We've trialled a combination of an anaesthetic and analgesic, using Numnuts® and Metacam®, which we think is probably the gold standard really for pain relief in sheep."

Tim Leeming at prime lamb enterprise Paradoo.

Metacam®, an injectable meloxicam product, is a long lasting non-steroidal anti-inflammatory drug.

"It's such a wonderful thing that we take on board pain relief for animals. We strongly encourage all farmers out there to use it."

Numnuts® applicator.

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Case Study: Lynley Anderson At Kojunup, WA

Western Australian Lynley Anderson has looked to breeding to help animal wellbeing, developing a sheep that does not require mulesing and that is worm resistant.

"As a Poll Merino stud breeder, it was really important to us to stop mulesing first so that our clients who want to stop mulesing can then know that the bloodline they're buying can cope with being non-mulesed," Ms Anderson, who runs a sheep and grain property three hours south of Perth, said.

She says plain-bodied sheep are also less likely to have problems with wool faults and flystrike.

"And now we are finding that non-mulesed sheep are being actively sought-after, particularly by people who are participating in quality assurance schemes."

The commitment to non-mulesed has also delivered Ms Anderson a premium, with average prices at the top end for Merino sales in WA.

Lynley Anderson from Anderson Rams.

Lynley Anderson with her sheep at Kojunup, Western Australia.

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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 2021
2.1.2 On-farm activity to prevent & treat disease			
2.1.2a % of producers who vaccinate their flock (any vaccine)		⌛	National Producer Survey 2022
2.1.2b Change in Australian Sheep Breeding Values (ASBV)	Change in Worm Egg Count BV % change = -10	🟢	MLA lambs born in 2020
	Change in Early Breech Wrinkle BV % change = -15	🟢	MLA lambs born in 2020
2.1.3 Producers adhering to biosecurity requirements			
2.1.3a % sheep producers compliant with LPA biosecurity requirements	80.2%	⭐	Integrity Systems Company 2021

Data Explained

2.1.1a	2.1.2a
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 six diseases recognised by the World Organization for Animal Health (WOAH) with an official disease status.	To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.

2.1.2b	2.1.3a
Worms and breech flystrike are amongst the most important health challenges for the Australian sheep industry. Genetic improvement is a key means to prevent disease. Tracking changes in ASBVs over time provides insights on changes in disease resistance in the Australian flock. A reduction in the Worm Egg Count (WEC) and Early Breech Wrinkle (EBW) Breeding Values over time means that flock resistance to worms and breech flystrike is increasing.	To meet the requirements of the Livestock Production Assurance (LPA) program, each enterprise must have a documented biosecurity plan. Of the 1218 sheep producers audited by Integrity Systems Company in 2021, 80.2% had a biosecurity plan. The remaining 19.8% were required to complete and submit a biosecurity plan. Failure to comply results in suspension and program withdrawal meaning no sheep from that enterprise may be transacted.

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What is Electronic Identification (eID)?

The value of Australia's sheep industries is underpinned by demonstrating traceability through the supply chain via the National Livestock Identification System (NLIS). The integrity of that system relies on it being robust, efficient, and nationally coordinated.

Under the NLIS, sheep are traced from their property of birth through all subsequent properties and processing and is verified by reconciling NLIS-accredited ear tag data with information provided on a movement document such as the National Vendor Declaration and the NLIS database. Using eID, this verification occurs through the scanning process which links each tagged animal to a particular consignor, location and date. Importantly, a link is also established with other scanned animals also present at that location, assisting greatly in contact tracing.

It has been demonstrated that electronically identified livestock can be traced with greater efficiency and accuracy than visually identified livestock. The faster that livestock can be traced, the greater the chance of controlling a disease outbreak, thereby minimising its economic and social effects.

Jo Hall, CEO of WoolProducers Australia, acknowledges the benefits of EID, and recognises that the full potency of the EID system will be realised in a nationally harmonised livestock identification system. "Underpinning strong traceability systems are nationally consistent standards that support the system," Ms Hall said.

Bonnie Skinner, CEO of Sheep Producers Australia agrees. "Effective traceability relies inherently on industry compliance and national consistency," Ms Skinner said.

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"The simple reality is that disease does not respect jurisdictional boundaries.

"A key principle underpinning the evolution of a traceability system must be the harmonisation of traceability standards and centralisation to create a truly national system.".

When fully supported and activated, the benefits of improved traceability to biosecurity and market access will accrue across the entire value chain.

Increased consumer interest in the origins of their food and clothing means provenance is becoming a key element of the sustainability credentials of Australian sheep meat and wool.

eID traceability supports provenance messaging by demonstrating the geographical origin of the Australian sheep meat or Australian Merino garment. This supports a whole range of messages to the consumer about the product including sensory characteristics, growing methods, and cultural backgrounds.

eID's powerful data collection capability provides lots of other benefits within the flock when individual animal data is collected, generated, and used for classing decisions or breeding purposes.

"When we shear our Merino lambs, we record the weight and fibre diameter of the fleece from every shorn animal," Michael Field, from T.A. Field Estates, said.

"We retain this data for the rest of their lives. We then combine this data, the animals' body weight (ewe portion only), fleece weight and fibre diameter (micron) into an index. If ever we want to change our breeding direction, we already have this data and can do so very easily. It has been proven that there is a very strong correlation between these results and the lifetime productivity of that sheep. In other words, having an eID gives lifetime data that we can use to improve animal health, product quality and productivity."

Michael and Angela Field.

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**Enhancing the
Environment and
Climate**

Enhancing the Environment and Climate

Material Issues

- GHG Emissions
- Soil health and pasture management
- Chemicals

- Biodiversity
- Energy
- Adaptation and extreme weather events

Click to learn more

Environment	
Priority	Improve Natural Resource Management

Indicator	Data	Status	Source
3.1.1 Protecting Soil Resource			
3.1.1a % Sheep grazing land achieving 50% groundcover	63.4%	★	CiboLabs Dec 2020
3.1.2 Conservation Practices			
3.1.2a % Sheep-producing land identified for conservation or protection purposes	2.7%	●	ABARES FY2020

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 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 benchmark, 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 2019, the dashboard reported that 56.2% of national sheep-grazing land had at least 50% ground cover. In December of 2020, 63.4% of sheep-grazing land had achieved at least 50% ground cover, demonstrating an overall increase in biomass across Australia's sheep-grazing land over a 12-month period. This positive change indicates an improvement in soil health, biodiversity, and related environmental outcomes.

3.1.2a

Using data published by ABS in Agricultural Commodities, the figures for 'land set aside for conservation or protection purposes' and 'land used for grazing' were identified, and then NRM regions where few sheep are kept were subtracted. This proportion of sheep-grazing land has held steady over the reporting period.

About the Dashboard

In 2018, the Australian Beef Sustainability Framework commissioned CiboLabs to design and develop the dashboard. The objectives were to:

- Integrate 30 years of satellite data identifying trends in woody vegetation and ground cover. Around 12 billion individual satellite pixels across the continent were analysed for each time period, requiring enormous high-performance computing resources and contemporary data science techniques

- Analyse trends specifically relating to grazing regions and the continent

- Analyse trends for every rural grazing property

- Enable the seamless aggregation of data for on-going reporting in relation to Natural Resource Management (NRM) regions, Local Government, ABS and ABARES farm survey data.

In 2021, Cibo Labs was engaged to modify the dashboard to make it sheep-specific. This benefits the sheep industry by:

- Allowing the Framework to annually track and measure the impact the sheep industry is having on vegetation in sheep-grazing regions

- Supporting the industry to drive improvement in environmental practices and celebrate successes of good farm management

- Providing a tool for producers to use for improving on-farm productivity and land management

- Creating a science-based measure of vegetation, separating fact from fiction in ongoing debates and for policymakers.

Using The Dashboard: Observing 30 Years of Natural Resource Management in Holbrook, NSW

Dry sclerophyll forest in the Greater Hume Shire. Photo Credit: K.Durant Holbrook Landcare Network.

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**Enhancing the
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Using The Dashboard: Observing 30 Years of Natural Resource Management in Holbrook, NSW (cont.)

Holbrook Landcare Network (HLN) is a community network based in the mixed farming producing region of southern NSW.

HLN supports farmers to achieve environmental care and improved management, and the adoption of sustainable and productive agricultural practices. Established in 1989, HLN is a vibrant rural organisation managing a range of agricultural and Natural Resource Management (NRM) projects.

HLN has been at the forefront of grassy woodlands restoration, on-farm revegetation, and remnant protection projects. Over the past three decades,

the region has significantly increased the extent of remnant forest and woodland through fencing and revegetation programs. This is evidenced in the on-line mapping dashboard developed for the Beef and Sheep Sustainability Frameworks. Map 1 shows the extent of woody vegetation in 1995 and Map 2 shows the net increase in woody vegetation in 2020 (secondary woody vegetation). Importantly, covering of remnant vegetation for land use change has been halted, with the areas identified as (temporary) loss on the map limited to sustainable forestry operations that will be regenerated after the bushfires of 2019/2020.

What are Secondary Forests?

Secondary, or regrowth, forests have enormous potential for removing carbon from the atmosphere and protecting landscapes from wind and water erosion. Shelterbelts also play a crucial role in protecting livestock from the extremes of harsh winds and temperatures. Over time, secondary

forest patches, corridors and shelterbelts reduce habitat fragmentation and contribute significantly to improving flora and fauna biodiversity. By improving connectivity, structure, cover and diversity the ongoing revegetation programs are creating a more resilient landscape for the future.

Map 1. 1992-1995 The extent of forest in woodland across the region in 1995 shown as shades of green.
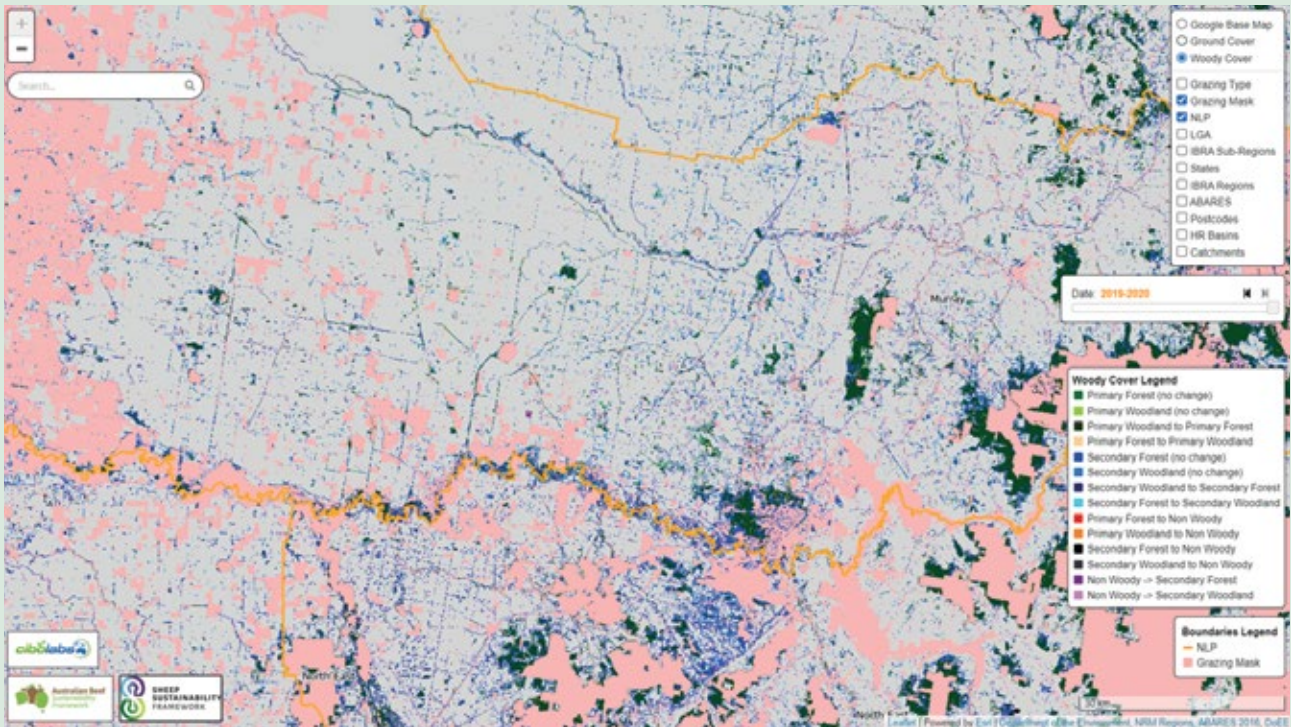
Map 2. 2019-2020 The increase in forest and woodland across the region since 1995 shown as shades of blue.

Environment

Priority	Responsible Environmental Practices

Indicator	Data	Status	Source
3.2.1 Responsible Chemical Stewardship			
3.2.1a % producers who have done ChemCert course or similar		⧗	National Producer Survey 2022
3.2.2 Efficient water use in processing			
3.2.2a Kilolitres water used per tonne hot standard carcase weight (HSCW) when processing sheep meat		🔍	
3.2.3 Minimise waste in processing			
3.2.3a Kilograms of solid waste per tonne hot standard carcase weight (HSCW) when processing sheep meat		🔍	

Data Explained

3.2.1a
To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.

3.2.2a and 3.2.3a
These metrics provides a measure of water usage and waste produced in the Australian sheep meat processing sector. The Australian Meat Processor Corporation (AMPC) reports water use and waste production from processing in its five-yearly Environmental Performance Review.
At this time, data for sheep processing rates of water use, or waste production are to be identified.
In time, this metric will be expanded to include the Australian wool processing sector and then extended to overseas processing facilities as data become available.

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 benchmark the industry's performance.		🔍	

Natural Capital Accounting for Wool-Growing

Biodiversity is the variety of all life forms on earth — the different plants, animals and micro-organisms and the ecosystems of which they are a part. It is sometimes referred to as 'the library of life'.

The value of Australia's biodiversity is difficult to measure, but biodiversity is a key part of Australia's national identity and is integral to subsistence and cultural activity for Indigenous Australians. It is also fundamentally important to environmental services that support human health and wellbeing, and economically important to a wide range of industries such as tourism, agriculture, and pharmaceuticals.

AWI piloted an ecological assessment process, called Natural Capital Accounting (NCA), so woolgrowers can track the health of their environment and identify and monitor the relationship between farming practice, environmental impact, and farm business performance.

The ecological assessment process uses six indicators:

Ecosystem services

Data on water purification, pollination, biodiversity protection and provisioning services such as food, fibre and forage production were collected.
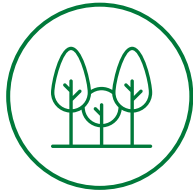
Ecosystem type and use

The study identified the ecological state of the environment.

Environment Profit & Loss

The study calculated each farm's environmental impact to compare with impacts of conventional wool production.
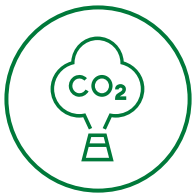
Carbon sequestration estimates

Total farm carbon emissions were used to determine carbon sequestration per annum.

Long-term ground cover

The ground cover of each farm was assessed over a 13-year period.

Ecosystem capacity

The capacity of the farm ecosystem to provide reliable quality forage for livestock was assessed.

Lana is 3,470 hectares of grasslands located on the Northern Tablelands of NSW run by woolgrowers Tim and Suzanne Wright. The Wrights were one of the 11 enterprises participating in the NCA pilot where environmental health could be tracked over time.

Tim Wright with his sheep at Lana. Photo Credit: AWI.

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**Enhancing the
Environment and
Climate**

For Lana, the results from the Natural Capital Accounting process were significant. It was found that:

- Lana sequesters 9.45 ktCO$_2$e per year;

- Over the past 13 years, ground cover at Lana remained above 90% and peaked at 100%;

- The Lana environment rated as highly functional and contributes an extensive range of natural regulating, provisioning, and cultural services.

Tim Wright at Lana. Photo Credit: AWI.

Wool bale from Lana. Photo Credit: AWI.

Tim has implemented a grazing plan where 95% of Lana is in rest and recovery mode throughout the year. Stock graze each period briefly and move on, leaving fertiliser in the form of manure and urine and mulch in the trampled pastures.

As a result of the management, native fauna and flora thrive at Lana including endangered aquatic species such as the bell turtle and platypus.

These endangered species are protected at Lana as the management allows for the grassland to function in a natural state, with pastures and shrubs abundant along the riparian areas ensuring suitable habitats both in and around the water.

Along with increasing flock size and wool quality production, Lana has seen remarkable increases in biodiversity, maintenance of ground cover through varying weather and climatic events and an increase in drought resilience.

Fleece at Lana. Photo Credit: AWI.

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**Enhancing the
Environment and
Climate**

Climate Change	
Priority	Reduce net GHG emissions

Indicator	Data	Status	Source
4.1.1 Contribution of sheep production to global warming/GHG emissions			
4.1.1a Net emissions: Mt of CO_2e generated by sheep industry (farm and sheep meat processing)	9.13 $MtCO_2e$	🟠	CSIRO 2019
4.1.1b Emission intensity: kg of CO_2e emitted per kg liveweight (LW) when raising sheep	6.8 kg CO_2e /kg LW	⭐	Integrity Ag 2020
4.1.1c Emission intensity: kg of CO_2e emitted per kg greasy wool shorn	24.4 kg CO_2e /kg greasy wool	⭐	Integrity Ag 2020
4.1.1d Emission intensity: kg of CO_2e emitted per tonne HSCW when processing sheep meat		🔍	
4.1.2 Renewable energy			
4.1.2a Metric to be determined		⧗	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, AR4 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. *Note: The reported figure represents approximately 1.7% of all of Australia's GHG emissions (530.7 MtCo2e 2019 Source: NGGI). The net emissions have not increased over the reporting period.*

4.1.1b

The newly developed Life Cycle Assessment reports emissions intensity of the Australian flock used for sheep meat production or live export for the year 2020.

4.1.1c

The newly developed Life Cycle Assessment reports emissions intensity of the Australian flock used for wool production for the year 2020.

4.1.1d

The Australian sheep meat processing industry adopts a number of emissions reduction initiatives. The Australian Meat Processor Corporation (AMPC) reports CO2e intensity from processing in its five-yearly Environmental Performance Review. At this time, sheep-specific emissions intensity is to be identified.

4.1.2a

Metric to be determined and reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.

About The Life Cycle Assessment for the Australian Flock

A Life Cycle Assessment (LCA) is the analysis of the impacts of a product or service during a specified life cycle. It covers all relevant inputs such as fuel, fertiliser and feed as well as gaseous outputs like methane, carbon dioxide and nitrous oxide.

Australian Wool Innovation (AWI) and Meat & Livestock Australia (MLA) partnered with Integrity Ag and Environment to develop an LCA for the primary production system of the Australian flock from 'cradle to farm gate'.

This study examined the primary production system of the Australian sheep flock, using a unit of one kilogram of liveweight and one kilogram of greasy wool on-farm, immediately prior to sale.

Australian Bureau of Statistics (ABS) data informed each national flock data set. Farm input data such as farm fuel use, feed inputs, fertiliser, services and transport of sheep throughout the supply chain were estimated from ABARES. The Australian National Greenhouse Gas Inventory (NGGI) was used to calculate GHG emissions.

The raw data was analysed and modelled using International Organisation for Standardisation (ISO) Environmental Management standards to develop the LCA.

The LCA reports greenhouse gas (GHG) emissions intensity from sheep meat and greasy wool across five-yearly intervals from 2005 to 2020. The LCA working model can be used to estimate emissions for future seasons.

Improved Productivity Drives Down Sheep Meat and Greasy Wool Emissions Intensity

The LCA found that improved productivity led to a 9% reduction in sheep meat emission intensity from 7.5 to 6.8 kg CO_2e/kg LW from 2005 to 2020 (Fig 3); and a 9% reduction in wool emission intensity from 26.9 to 24.4 kg CO_2e/kg greasy wool (Fig 4) from 2005 to 2020. This calculation excludes emissions from land use (LU) and direct land use change (dLUC).

	2005	2010	2015	2020
CH_4 (kg)	6.2	6.2	5.4	5.4
N_2O (kg)	0.5	0.6	0.5	0.5
CO_2 (kg)	0.8	0.8	0.8	0.9

Year

Figure 3. Emission intensity (excluding LU and dLUC) from live weight production weighted across the breed types over the 15 years from 2005 to 2020, showing methane, nitrous oxide and carbon dioxide emissions.

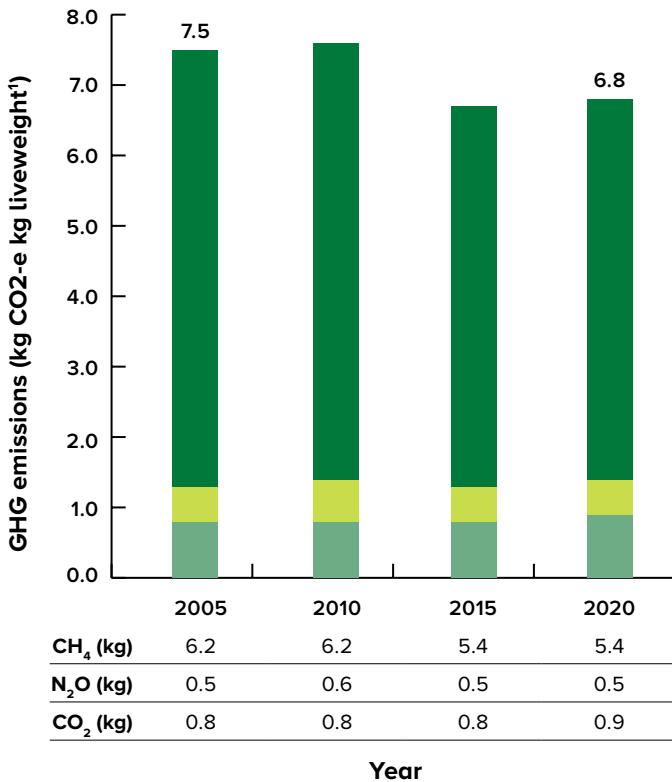|	2005	2010	2015	2020
CH_4 (kg)	22.1	22.0	19.5	19.2
N_2O (kg)	2.0	2.0	1.8	1.8
CO_2 (kg)	2.8	2.9	2.9	3.3
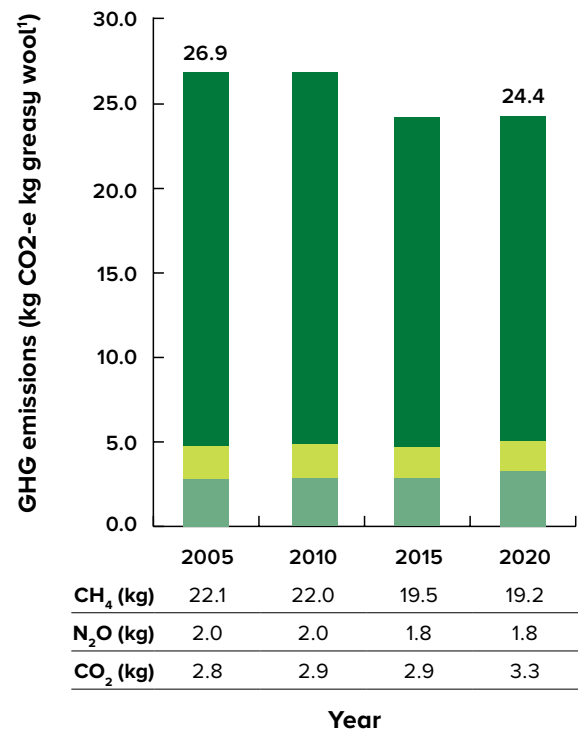
Year

Figure 4. Emission intensity (excluding LU and dLUC) from greasy wool production weighted across the breed types over the 20 years from 2005 to 2020, showing methane, nitrous oxide and carbon dioxide emissions.

Climate Change	
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	0.2%	🔴	ABARES 1999-2000 (base year) to 2019-2020

Data Explained

4.2.1a

This figure shows a directional decrease in climate-adjusted productivity. The 2017-2019 drought across subtropical eastern Australia was the driest and hottest three-year period since 1911. Despite this, sheep producers still managed to achieve a positive, albeit small, growth in TFP.

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

In this case, climate-adjusted TFP takes climatic activity into account and, year on year, climate-adjusted TFP 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 — it is adapting and showing resilience to climate change.

Looking After Our People, Our Customers and The Community

Material Issues
- Safety
- Labour Standards, human rights and employment
- Livelihoods
- Occupational health

Click to learn more

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: 35	🔴	Safe Work Australia's Work-related Traumatic Injury Fatalities Database 2016-2020
5.1.2b Number of serious injury workers' compensation claims in the sheep industry	On-farm: 217 serious claims	⭐	Safe Work Australia's National Dataset for Compensation based Statistics (NDS) 2019-20p

Data Explained

5.1.1a

Data to be identified.

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. There has been one on-farm death 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): 15 worker fatalities
- Sheep-beef cattle farming: 20 worker fatalities

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Data Explained

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 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): 56 serious claims
- Sheep-beef cattle farming: 161 serious claims

2019-20 data are preliminary (denoted by 'p') and are likely to rise as revisions occur in future years.

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

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 industry participants who have completed further education (including traineeships or other further education)		🔍	
6.1.2 Appropriate working conditions			
6.1.2a Federal award rate ratio	1.24 :1	🟠	Fair Work Ombudsman FY2021

Data Explained

6.1.1a	6.1.2a
Data to be identified.	A ratio comparing the shed hand hourly casual rate ($31.37) with the minimum award hourly casual rate ($20.33 + 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 24% higher than the minimum casual hourly rate.

Capacity Building

Priority	Encourage workforce diversity

Indicator	Data	Status	Source
6.1.3 Availability of workforce			
6.1.3a Level of availability of workforce amongst producers		⧖	National Producer Survey 2022
6.1.3b Level of availability of workforce amongst processors		🔍	
6.1.4 Extent of succession planning in the industry			
6.1.4a % of producers with succession plans or exit strategies		⧖	National Producer Survey 2022
6.2.1 Extent of workforce diversity			
6.2.1a Age/gender breakdown of the workforce		🔍	
6.2.1b Cultural diversity		🔍	

Data Explained

6.1.3a	6.1.3b
To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.	Data to be identified

6.1.4a	6.2.1a
To be reported in the Q2 FY2023 SSF mid-year update with results from the National Producer Survey.	Metric to be identified.

6.2.1b
Metric to be identified.

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**Looking After Our
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and The Community**

Diversity and history intertwined at Australian Lamb Company

There is a proud history of meat processing in the Victorian town of Colac that stretches back more than a century but at Australian Lamb Company (ALC) there is also a celebration of the breadth of cultures among its approximately 900-strong workforce.

Together with many locals, there are more than 25 nationalities represented across ALC's sites at Colac and Sunshine West, including from Taiwan, Sudan, Vanuatu, Samoa, China, Afghanistan and Malaysia. In Colac, ALC is the single largest employer in town and CFO/Director Dale Smith says he's proud 95 per cent of employees live locally.

"Our employees, who come together locally and from so many parts of the globe, bring a richness and diversity to our facilities and also to the local schools, sporting clubs and community groups," Mr Smith said.

ALC provides secure work and the opportunity to gain qualifications such as the Certificate in Meat Processing and training and experience that is transferrable to many other areas of food production and manufacturing. The skills learned by its international workforce can also be taken home with them at the end of their visa.

It is not always easy to move overseas, sometimes halfway across the world, to a very different culture, education system, healthcare network and climate. ALC has a People and Culture Coordinator to try to make that adjustment as easy as possible, working in partnership with local health services for healthcare and hospital tours, local police to explain rules and regulations and education

courses for everything from driving and banking to healthy living choices.

New international employees are also offered plenty of support from local non-profit community organisations such as Neighbourhood Houses Victoria and have access to a homework club for the children of staff, and free English language lessons. ALC also actively celebrates the cultures represented on site with special food days being a favourite with employees, who also benefit from the chance to make friends from different countries and embrace new cultures.

The company's commitment to its international workforce underscores one of the central themes of the Sheep Sustainability Framework – Looking after our People, Customers and Community – and not only builds capacity within its workforce but galvanises community trust in agriculture.

"We support local suppliers wherever possible, including local farmers, materials and expertise for our project work and other contracts, injecting funds back into the local economy," Mr Smith said.

"ALC also has a preference of promoting from within so there are as many opportunities as possible to move into higher levels and into supervisor and managerial roles to give our people not just a job but a career."

Sourcing the best people locally and from across the globe also means ALC has the greatest mix of skills and abilities to ensure that meat processing continues in Colac into the future and maintains its place as a rewarding industry to work in and one that contributes to the fabric of the communities in which it operates.

Looking After Our People, Our Customers and The Community

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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	53%	🟠	MLA Consumer Sentiment Study 2021
7.1.1b % of respondents who believe wool is more environmentally friendly than other fibres	55%	⭐	AWI 2021 Global Brand Tracking Study

Data Explained

7.1.1a

The MLA Consumer Sentiment Research is conducted by Pollinate. Now in its 13th year, it surveys about 1500 nationally representative consumers annually. This measure has held steady for some years.

7.1.1b

The AWI 2021 Global Brand Tracking Study surveys over 6,500 respondents split across 8 countries. Although this is a benchmark data point for the SSF, the % of respondents who believe wool is more environmentally friendly than other fibres has increased from the 2018 figure of 48%.

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 % Australians who believe that Australian lamb is worth paying a bit more for	26%	🟠	MLA Domestic Consumer Tracker 2021
7.2.1b Willingness to pay (WTP) for 100% wool garments	78%	🔴	AWI 2021 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 2021 Global Brand Tracking Study shows a directional decline in WTP since the 2018 study. Notably, figures from this same 2021 study show that 83% of respondents would pay a premium for Merino wool and 70% would pay a premium for wool-blend apparel.

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**Ensuring a Financially
Resilient Industry**

Ensuring a Financially Resilient Industry

Material Issues   • Economic Contribution   *Click to learn more*

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 3-year rolling average	0.8% (average per farm)	🔴	ABARES 2017-2018 to 2019-2020

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 declined since the last reporting period due to the impact of the east coast drought 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 ($) of agricultural production for sheep meat	$4,837M	🟢	ABS FY2020
8.2.1b Gross value ($) of agricultural production for greasy wool	$2,745M	🔴	ABS FY2020

Data Explained

8.2.1a	8.2.1b
Sheep meat production value increased by 14% over the reporting period	Wool production value decreased by 48% over the reporting period

MLA Overview 2020-2021

MLA's sheep and lamb price indicators hit or neared historic marks, due to the turnaround in seasonal conditions and reduced supply. Globally, lamb supplies were limited, leading to increased demand for Australian red meat. This has also supported increased competition in Australia, with restockers, processors and exporters all competing for a reduced supply pool, underpinning high prices. In Asia, African Swine Fever created protein shortages, with Australia benefitting from increased demand to fill this gap. The high Australian dollar over this period put pressure on exporter and importer margins, creating additional challenges when coupled with high sheep prices. The COVID-19 pandemic continued to dominate headlines. Overseas, there are also spontaneous outbreaks in some of our key markets. Despite this, our industry remained more protected than others from the virus fallout. This is thanks to the recognition by the government of the industry being an essential service and by our traceability systems and reputation as a safe, trusted source of high-quality protein. Retail sales benefitted from COVID-19 as consumers spent more time at home, and although foodservice sales were disrupted, especially in some key overseas markets, they are returning to normal levels.

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**Ensuring a Financially
Resilient Industry**

AWI Australian Wool
Innovation Limited

AWI Overview 2020-2021

AWI faced two immensely challenging situations during 2020/21. Firstly, the social and economic disruption caused globally by the COVID pandemic which resulted in weak demand for clothing across the world. Secondly, the fall in AWI's annual revenue to the lowest level in the company's entire 20-year history.

At that time, the situation looked quite bleak for the industry, with lockdowns having been imposed on many of our international markets, a falling key wool industry indicator - the AWEX Eastern Market Indicator (EMI) - the financial and emotional toll of the drought still being felt, and a great deal of uncertainty about the future.

However, despite all this disorder, the industry has once again shown its resilience, aided by a relaxing of lockdowns and a resurgent EMI. From the first week of September 2020, which was a low point of 858c, the EMI increased by 565c, 66%, to end the 2020/21 season at 1423c.

Good rains across much of Australia enabled increased production and added to the renewed optimism. The nation's wool clip in the 2020/21 season was 7.6% higher than the previous year, reaching 318.2 million kgs. So, the industry ended the 2020/21 year in better shape than it started. But there are still plenty of challenges – and many opportunities ahead.

Ensuring a Financially Resilient Industry

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 2019-2020
8.3.1b Genetic breeding index for productivity	Dual Purpose Merino: 150.5	🟢	MLA Lambs born in 2020

Data Explained

8.3.1a	8.3.1b
Total Factor Productivity (TFP) is expressed as average annual % growth over a given period of time and is relative to change from the base year. Unadjusted TFP annual growth rate (0.0%) is slightly lower than the climate-adjusted TFP (0.2%) in 4.2.1a. The difference between the two figures reveals the additional amount of productivity growth that has been required to offset the effects of the trend towards poorer climatic conditions largely due to the 2017-2019 east coast drought.	Indexes incorporate economically important traits so that genetic gain in one trait is not made in isolation from other traits. This index has increased over the reporting period which demonstrates that dual-purpose Merinos have become more productive and profitable in our production system. The data refers to lambs born in 2020.

Ensuring a Financially Resilient Industry

Priority	Encourage Innovation

Indicator	Data	Status	Source
8.4.1 Investment in Research, Development and Adoption (RDA)			
8.4.1a $ invested in RDA per annum	$25.0 million (sheep meat)	🟠	MLA FY2021
	$27.6 million (wool)	🔴	AWI FY2021

Data Explained

8.4.1a
A sum of levies and matched funds directed to Australian sheep meat and wool Research and Development Corporations.

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 sheep meat exports	43%	🟠	MLA 2021
9.1.1b AU value share (%) of greasy wool exports	65%	🟠	AWI 2020

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 held steady despite the trade disruptions due to the global pandemic.

Ensuring a Financially Resilient Industry	
Priority	Ensure positive market positioning and access

Indicator	Data	Status	Source
9.1.2 Access to markets			
9.1.2a The non-tariff barrier (NTB) impact on trade (sheep meat and offal) in $	$890.2M	🟢	MLA 2021
9.1.2b % value share of Australian sheep meat, sheep offal and live sheep exports covered by one or more preferential trade agreements (PTA)	75.8%	🟢	MLA 2021
9.1.2c % value share of Australian greasy wool exports covered by one or more preferential trade agreements (PTA)	85.7%	🔴	AWI 2021

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 2%.

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 and the most common examples of PTAs.

Over the reporting period, the value share of Australian sheep meat products covered by PTAs has directionally increased by 8%, whilst the value share of wool covered by PTAs has directionally decreased by 2%.

**Ensuring a Financially
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Ensuring a Financially Resilient Industry	
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	14.7%	🟢	AWEX
9.2.1b Compliance rates (%) for chemical residues in sheep meat	99.86%	🟢	DAFF/NRS

Data Explained

9.2.1a

Voluntary product integrity schemes include Authentico, Better Choices, Responsible Wool Standard (RWS), EU-Ecolabel, SustainaWOOL and others. The percentage of the clip associated with one of these schemes has increased by 30%. This is a positive change albeit off a small base.

9.2.1b

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 directionally improved over the reporting period.

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Connecting the
Sheep Sustainability
Framework Themes

Connecting the Sheep Sustainability Framework Themes

The impact of climate change on biosecurity and market access

The Sheep Sustainability Framework (SSF) has four distinct themes: Caring for our Sheep; Enhancing the Environment and Climate; Looking after our People, Customers and Community; and Ensuring a Financially Resilient Industry. However, recognising the interdependency of these themes is a critical part of realising the industry's vision and achieving its objectives under the SSF. The impact of climate change, for example, is closely linked with animal health and welfare, biosecurity and market access.

As the world's climate changes, the sheep meat and wool industry in Australia is facing the impact of rainfall variability, temperature fluctuations, and natural disasters. But there are also climate change implications with respect to the nation's increasing biosecurity risks, that could have serious impacts on market access and the financial resilience of the sector.

As temperature increases, changes in precipitation and humidity positively affect the reproduction and geographic spread of pests and disease vectors such as flies, ticks, and mosquitoes.

Australia's Chief Veterinary Officer, Dr Mark Schipp, said climate change is posing "immense challenges" citing the recent arrival in southern Australia of Japanese encephalitis, a serious zoonotic disease affecting both humans and animals, spread by mosquitoes.

"The recent outbreak of Japanese encephalitis across multiple jurisdictions is just one example of the significant impact that unusual weather patterns can have on animal, human and environmental health," Dr Schipp said.

Enhancing the environment and climate

Caring for our sheep

Ensuring a financially resilient industry

Looking after our people, our customers and the community

"There are also less visible and more insidious impacts that will only become apparent over time.

"An increase in vector-borne disease outbreaks, and the potential for new and emerging disease threats to unfold in Australia as a result of climate change, poses a direct threat to animal wellbeing and our trade access that's worth billions of dollars."

Dr Michael Laurence, Meat & Livestock Australia (MLA) Program Manager — Animal Wellbeing, said the connection between climate change and biosecurity risk is clear.

"With the climate changing around the world diseases are spreading where they haven't spread before and these are usually the vector-borne ones," Dr Laurence said.

He said the impacts were already being noticed in the beef industry.

"There are significant opportunities available to Australia's sheep industry as a result of the world's growing interest and demand for sustainably produced food and fibre. The value of Australia's sheepmeat industry is inextricably linked to Australia's capacity to export.

Therefore, we are both reliant on and protected by our national biosecurity and traceability systems and the market access that they afford. We need to be ahead of the challenges and opportunities that give Australia the ability to provide food security both domestically and internationally." Bonnie Skinner, CEO Sheep Producers Australia

**Connecting the
Sheep Sustainability
Framework Themes**

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"We are starting to see a drift within the endemic disease population in Australia - things like ticks and buffalo flies are moving. Some of the internal parasites are becoming either more localised or concentrated, or more widely distributed." - Dr Michael Laurence

WoolProducers Australia General Manager, Adam Dawes says an outbreak of an emergency animal disease would be devastating – even if it was quickly contained.

"Even if we did get, for example, a foot and mouth disease outbreak, and contained it and eradicated it on day one it's still a process of 18 months before we can get back to a formal status of having freedom without vaccination and retain the market access we have now," Mr Dawes said.

Australia does have a number of inherent advantages with respect to biosecurity. Being an island continent naturally shields the nation and provides the foundation for an effective and preventative border control system.

Jo Quigley, Group Manager of Integrity Systems Company Operations, adds that those advantages have been bolstered by traceability systems such as the National Livestock Identification System (NLIS) but stressed that the entire biosecurity effort was a shared responsibility.

"It's very important," Ms Quigley said.

"From livestock farmers to supply chain participants to government and the community in general, everyone has a role to play and if someone is not playing their part then they're putting the entire system at risk." - Ms Jo Quigley

"That's why as an industry we're investing not just in the traceability systems but also programs like Livestock Production Assurance (LPA), where we're implementing best practice on-farm to ensure the majority of producers are doing the same thing."

The message of a shared responsibility was echoed by Australia's Chief Veterinary Officer.

"Everyone has a role in preventing harmful pests and diseases from entering Australia," Dr Schipp said.

"Engaging at a grassroots level by promoting on-farm biosecurity, utilising citizen science and working more closely with Indigenous Australians, provides an opportunity to improve our system." - Dr Mark Schipp

"Additionally, enhancing our engagement with international organisations and trading partners on biosecurity can help us to mitigate risks before they reach our shores."

Andrew McCallum, MLA Global Manager – Trade and Market Access, says international customers are demanding safe products with robust biosecurity systems are helping to provide that assurance.

"Robust biosecurity systems not only reassure existing customers and keep the doors open but is also a positive point of differentiation for Australia when discussing trade reform." - Mr Andrew McCallum

"Our overseas customers also wish to know what we are doing to address climate change. Industry's Carbon Neutral by 2030 (CN30) ambition and its various components is being received very favourably."

Dr Laurence says the environmental and animal welfare credentials of the livestock industry are being keenly watched by consumers and stakeholders domestically as well.

"I think to be shown within Australia to be focussing on those issues and a move towards carbon neutrality is really important," Dr Michael Laurence said.

As the impacts of climate change come to be realised in the years ahead, Dr Schipp said it was critical for Australia to be adaptable and avoid complacency.

"Our biosecurity system must evolve to manage and prevent these threats," he said.

"It won't be sufficient to do more of the same. We will need to work smarter and more collaboratively, harnessing technology and data to drive biosecurity innovation."

Climate change presents challenges across all parameters of the value chain, and it is for this reason that the SSF does not rank themes, focus areas or priorities in order of importance to industry. The SSF plays an important role in the management of sustainability focus areas – such as climate change, animal health, capacity building, market access and industry profitability - by tracking and reporting industry performance over time using relevant indicators and defensible data. The reporting highlights successes and identifies areas for improvement, supporting both credential building and continued investment in advancing our industry.

The maintenance and protection of our sheep meat and wool export industries is paramount. Whilst Australia has an enviable biosecurity and quarantine system, there is no such thing as zero risk. Clearly, the shared responsibility and successful management of biosecurity is fundamental to the prosperity of all.

"The four pillars of the Sheep Sustainability Framework address the inherent interconnectivity of sheep and wool production in Australia. As producers, we look after our people, our animals and our land in order to be financially sustainable, however we must be financially sustainable in order to look after our people, animals and land". Jo Hall, CEO WoolProducers Australia.

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**The Sheep
Sustainability
Framework
F23 Activities**

The Sheep Sustainability Framework

FY2023 Activities

Click to learn more

The SSF has begun FY2023 by initiating the activities aligned with the three strategies identified in the FY2022-FY2024 SSF Strategic Plan.

Strategy	Activity	Timing
Stakeholder Engagement	Activation of stakeholder Engagement Strategy	Q1-Q4 FY2023
	Activation of Communication Plan	Q1-Q4 FY2023
	Consultative Committee Meeting	Q2 FY2023
	Industry Forum	Q3 FY2023
Data Collection and Reporting	Completion of Written Protocols for Data Collection	Q1 FY2023
	Completion of Indicator Reporting Plan for FY2023 and FY2024	Q1 FY2023
	Launch of Mid-Year Update	Q2 FY2023
	Launch of Second Annual Update	Q3 FY2023
Continuous Improvement	Inaugural ABSF and SSF Combined Steering Group Meeting	Q1 FY2023
	SSG skill building: Carbon in Agriculture	Q1 FY2023
	SSF Review	Q3 FY2023
	Deep Dive into data identification and collection for the theme of Looking After Our People, Our Customers and The Community	Q1-Q2 FY2023

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Governance

Sheep Producers Australia (SPA) and WoolProducers Australia (WPA) are the peak industry councils (PIC) for the sheep meat 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, will be formed in late 2022 to provide ongoing input to the Framework. An Industry Forum will also be developed to discuss issues specific to internal stakeholder groups. 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 sheep meat and wool sectors as relevant and where data exists.

Approve	Sheep Producers Australia and WoolProducers Australia	**To make top level decisions and to approve the Framework**
Lead	Sustainability Steering Group	**To develop, build and deliver the Framework**
Perspectives	Consultative Committee Expert working groups	**To be established following Framework consultation. Made up of industry and other stakeholders**
Support	Australian Wool Innovation and Meat & Livestock Australia	**To provide strategic and secretariat support**

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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.

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Consultation

Stakeholders from across the sheep meat 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 (IAP$_2$). 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 meeting were help 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.

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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.

Table A1. 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.

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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 Standard Breeding Values
ASEL	Australian Standards for the Export of Livestock
AU	Australia
AWEX	Australian Wool Exchange
AWI	Australian Wool Innovation
CO_2e	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
LPA	Livestock Production Assurance
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

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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	Sustainability 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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