



2020-2021 MEAT STANDARDS AUSTRALIA ANNUAL OUTCOMES REPORT

Delivering consumer
confidence in eating quality





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Introduction

Meat Standards Australia (MSA) is the world's leading eating quality grading program for beef and sheepmeat, developed to improve the eating quality consistency of red meat.

The system is based on over 1.2 million consumer taste tests by more than 171,000 consumers from 11 countries and takes into account the factors that affect eating quality from the paddock to plate.

Beginning in 1998, MSA integrates more than 20 years of research and development with commercial outcomes, and involves participation along the entire Australian red meat supply chain.



Introduction

MSA also includes an adoption program, which seeks to support both on-farm and off-farm stakeholders to adopt eating quality principles to receive considerable benefits.

The Australian red meat industry has acknowledged that meeting consumers' eating quality expectations is a strong driver of demand and MSA has delivered significant benefits by doing this.

MSA can also be linked to other intrinsic purchasing drivers such as animal welfare and sustainability, for example, through best management practices that optimise both eating quality and animal welfare.

ABOUT THE MSA PROGRAM



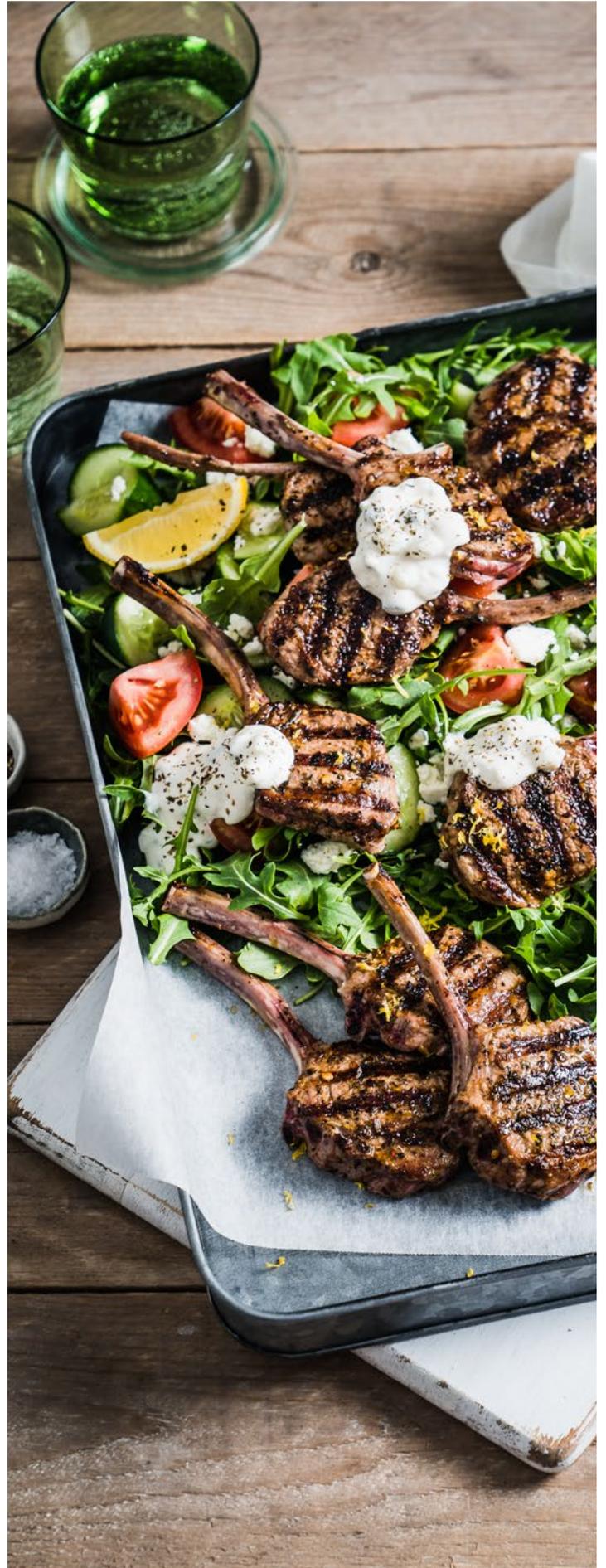
MSA IS THE WORLD'S LEADING
EATING QUALITY GRADING PROGRAM
FOR BEEF AND SHEEPMEAT.



IT PROVIDES PRODUCERS WITH
THE INFORMATION AND TOOLS TO
UNDERSTAND THE TRENDS AND
DRIVERS OF EATING QUALITY.



THIS ALLOWS SUPPLY CHAIN
STAKEHOLDERS TO IMPLEMENT
IMPROVEMENT STRATEGIES AND
CREATE OPPORTUNITIES FOR
IMPROVED RETURNS.



Program Manager's report

The world-leading eating quality grading program, Meat Standards Australia (MSA), continues to grow year-on-year, ensuring Australia's beef and sheepmeat align with consumer expectations.

In 2020-21, the MSA program achieved a major milestone, with MSA graded cattle now representing more than half of the national adult cattle slaughter, at 53%, up from 46% in 2019-20.

The program continues to deliver to MSA beef producers, with an estimated \$157 million in additional farm gate returns.

More than 3.3 million cattle were MSA graded through 38 Australian beef processors in 2020-21. While this is an 11% decrease in the number of cattle on the previous year, it reflects an overall reduction in slaughter numbers.

Processors representing 53% of MSA graded carcasses are using the Eating Quality Graded cipher in their business to describe beef products by an eating quality outcome.

An additional 2,594 producers became MSA registered in 2020-21, taking the total number of registered MSA producers to 48,241.

The refreshed myMSA platform drove increased adoption in 2020-21, providing MSA registered producers with access to a range of new features to identify opportunities to improve the eating quality of their animals. Over the past 12 months, 3,445 producers used the myMSA feedback system 22,407 times – an increase of 38% on the previous year.

In 2020-21, the average MSA Index for MSA compliant carcasses in Australia was 57.62, a slight decrease of 0.41 from the record-breaking 58.03 national average Index in 2019-20. While there was a reduction in the Grainfed MSA Index, there was an improvement in the non-Grainfed MSA Index compared to 2019-20.

The first MSA sheepmeat cut by cook method model was delivered in 2020-21, based on over a decade of research. While commercial implementation of the model will be dependent on the delivery and adoption of intramuscular fat (IMF) measurement technologies, once implemented it will enable processors and brand owners to apply sophisticated eating quality segregation within their supply chains, along with incentive and reward for improvement on farm. In preparation for the next evolution of the MSA sheepmeat model, 57% of the total lambs processed in Australia were processed through MSA-licensed processing plants that follow processes to improve eating quality.

Despite a difficult year due to COVID-19 travel restrictions, the MSA team adapted to a new way of working and focused on different ways to conduct important tasks to ensure integrity and growth in the program.



DAVID PACKER, MSA PROGRAM MANAGER

“The program continues to deliver to MSA beef producers, with an estimated \$157 million in additional farm gate returns.”

“The first MSA sheepmeat cut by cook method model was delivered in 2020-21, based on over a decade of research.”



MSA program integrity was upheld through a range of remote activities including data analysis and the use of technology to gather video and photo evidence from processing and end user sites.

As a result, MSA facilitated more than 15 producer workshops and information sessions in 2020-21, enabling over 700 beef and sheepmeat producers to receive MSA education.

In addition to this, 300 livestock agents, advisors and industry service providers participated in MSA training and workshops.

By engaging with this important sector, it both expands the reach of MSA education and coordinates with other Meat & Livestock Australia (MLA) Adoption Programs.

In the retail and foodservice sector, 26 end user outlets including wholesalers, retailers and foodservice operators also participated in MSA training and became MSA licenced operatives.

MSA program integrity was upheld through a range of remote activities including data analysis and the use of technology to gather video and photo evidence from processing and end user sites.

While some research and development (R&D) projects were delayed due to COVID-19 making site access and consumer taste testing limited, MSA was still able to conduct eating quality research regarding Wagyu cattle, entire males, adding value to cull cows, optimising dairy beef pathways, and opportunities for new veal pathways. The next steps will be translating this research into commercial outcomes.

In export markets, the United States Department of Agriculture (USDA) again approved MSA as a Process Verified Program (PVP) to support brand owners to use the USDA PVP shield alongside the MSA logo. This assists with marketing their MSA product in the United States.

While the COVID-19 pandemic has posed several challenges over the past year, the MSA program has continued to strive towards its *MSA Strategic Plan 2020-25* objectives, as well as support the outcomes of *Red Meat 2030*. By finding new ways to operate and evolve, and work collaboratively to build a more engaged, equipped, and linked supply chain, the MSA program remains committed to doubling the value of Australian red meat sales and ensuring that it is the most trusted source of the highest quality protein.



2020-21 highlights

3.3 MILLION

CATTLE WERE MSA GRADED, REPRESENTING **53%** OF THE NATIONAL ADULT CATTLE SLAUGHTER – THE HIGHEST PROPORTION OF MSA CATTLE GRADED ON RECORD

MSA DELIVERED AN ESTIMATED \$157 MILLION

IN ADDITIONAL FARM GATE RETURNS TO BEEF PRODUCERS



26 END USER OUTLETS

RECEIVED TRAINING



3.4 MILLION

SHEEP FOLLOWED MSA PATHWAYS, REPRESENTING **14%** OF THE NATIONAL LAMB SLAUGHTER

3,445

PRODUCERS USED THE **myMSA** FEEDBACK SYSTEM **22,407** TIMES



57.62

NATIONAL AVERAGE MSA INDEX



DELIVERY OF AUSTRALIA'S FIRST SHEEPMEAT CUT BY COOK METHOD EATING QUALITY MODEL



19,000 CONSUMERS

PARTICIPATED IN TASTE TESTING **OVER 130,000 MEAT SAMPLES** AS PART OF EATING QUALITY RESEARCH



MORE THAN 700

BEEF AND SHEEP PRODUCERS RECEIVED MSA EDUCATION

Looking forward

The MSA program has revolutionised red meat eating quality over the past 23 years. The *MSA Strategic Plan 2020-25* outlines the vision and direction for continued adoption of eating quality principles and the resulting benefits driven by the MSA program. This year was the first in the implementation of this Strategic Plan.

2025 VISION

Foster the long-term prosperity of the Australian red meat and livestock industry, by collaborating with stakeholders to invest in research, development and marketing initiatives that contribute to producer profitability, sustainability and global competitiveness.

(MLA Strategic Plan 2025)



Pillar 1: Evolve to drive global growth and value

MSA will evolve and expand to capitalise on new opportunities to extract and double the value of Australian red meat sales.



Pillar 2: Strengthen the foundation

MSA will ensure continued integrity and systems that fortify consumer confidence in red meat over the next five years.

What success looks like for MSA

- > New traits and measurements on-farm and across the supply chain ensure continual advancement to exceed consumer expectations.
- > Sheepmeat industry evolution with world's-best cuts-based eating quality system extracting greater value for all supply chain participants.
- > Australia is the leader in global collaborative eating quality research.
- > Value-based payments are a reality, ensuring the value is shared across the supply chain to drive continual improvement.
- > R&D and technology defines new traits and measures on-farm and across the supply chain, ensuring continual transformation to exceed consumer demands.



MSA beef

In 2020-21, MSA continued to perform strongly, with more than 3.3 million cattle MSA graded through 38 Australian beef processors.

MSA graded cattle now represent more than half of the national adult cattle slaughter, at 53% in 2020-21, up from 46% in 2019-20. Non-Grainfed cattle represented 41% of MSA-graded cattle – an increase of 2% from 2019-20, whereas Grainfed carcasses represented 59% of MSA-graded cattle (see page 13 for Grainfed definition).

Supporting this growth was the introduction of seven new brands, bringing the total number of beef brands underpinned by MSA to 189. Processors representing 53% of MSA graded carcasses are utilising the Eating Quality Graded cipher in their business to describe beef products by an eating quality outcome.

By volume, Queensland continues to process the greatest number of MSA graded cattle with 1.6 million head, while New South Wales had the highest compliance to MSA minimum requirements at 96.8%.

An additional 2,223 beef producers became MSA registered in 2020-21, taking the total number of MSA registered beef producers to 39,736. MSA registered beef producers represent 25% of Livestock Production Assurance (LPA) accredited cattle properties.

A total of 10,802 beef producers consigned cattle for MSA grading at MSA licensed processing plants.



MSA beef

Figure 1. MSA proportion of slaughter by state 2020-21

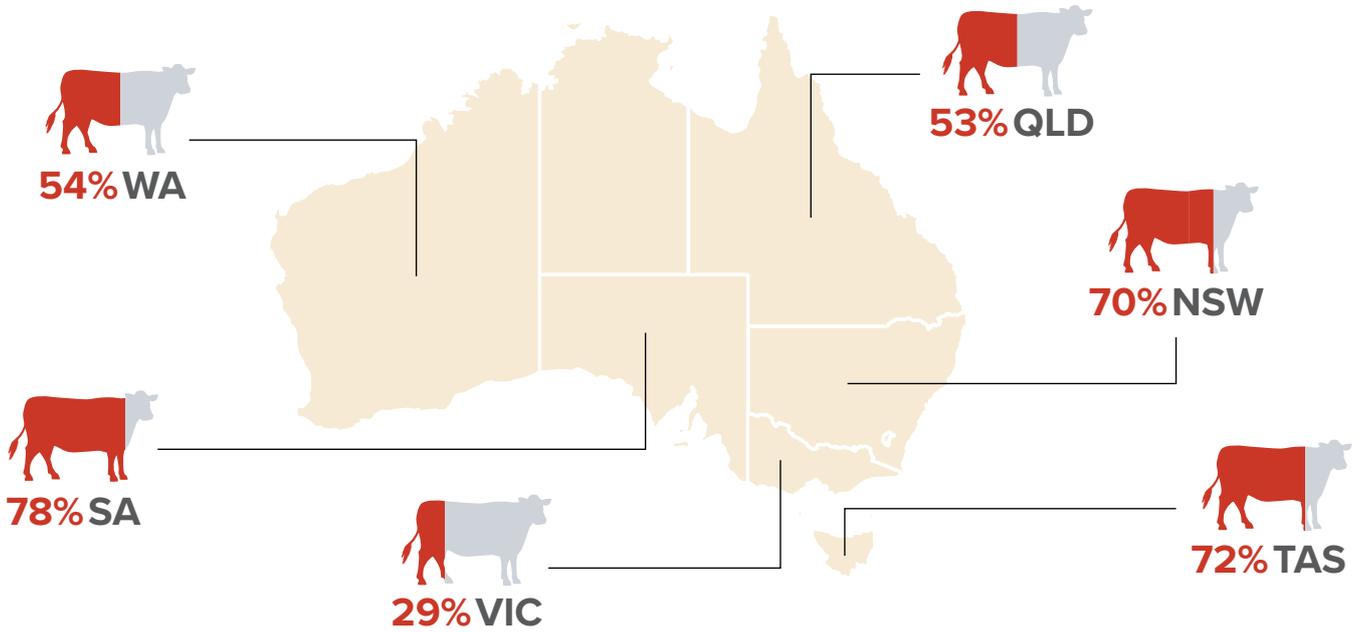


Figure 2. National MSA beef grading numbers 2020-21

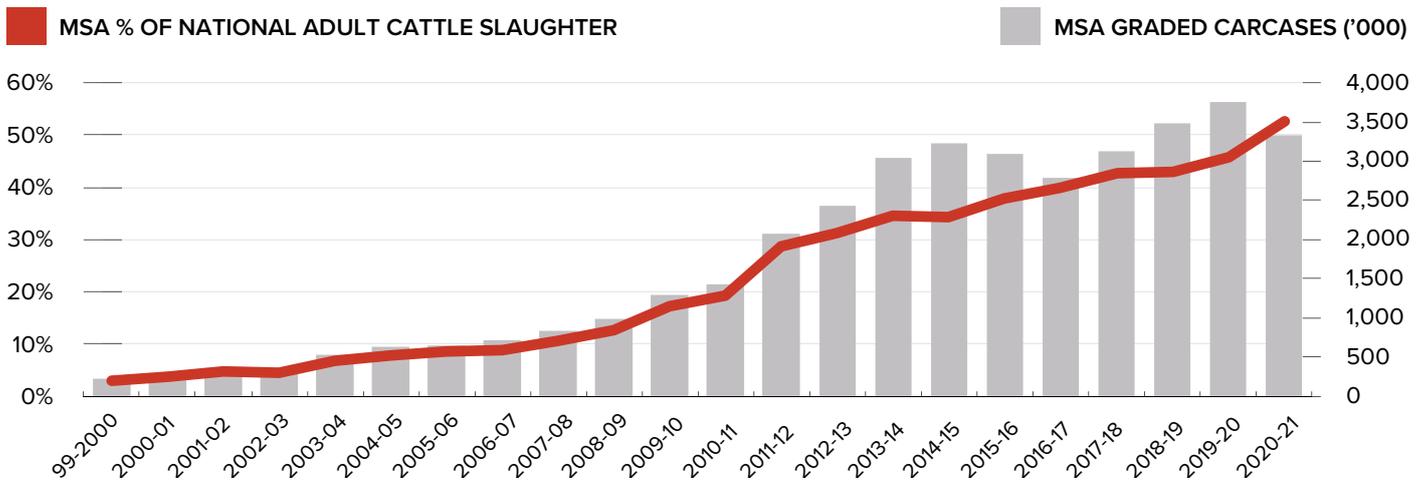


Figure 3. MSA graded carcasses by state 2016-17 to 2020-21



MSA beef carcass compliance

Compliance rates vary from region to region, according to seasonal conditions. In 2020-21, overall compliance to MSA minimum requirements was **95.5%** nationally, which was the highest on record. Non-compliance was the highest in July at 5.9%.

Non-Grainfed cattle represented 41% of MSA-graded cattle – an increase of 2% points from 2019-20.



MSA compliance for Grainfed cattle remained constant at 98.1%.



MSA compliance for non-Grainfed cattle increased from 90.0% in 2019-20 to 91.7% in 2020-21.



Figure 4. National non-compliance 2020-21 by total, pH and rib fat

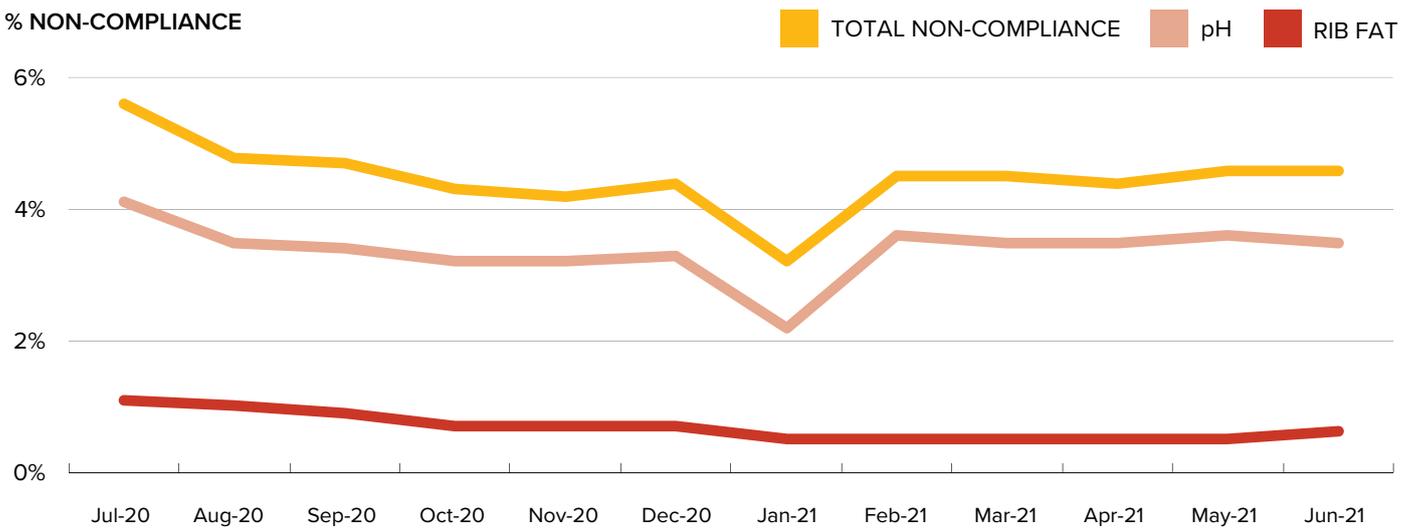
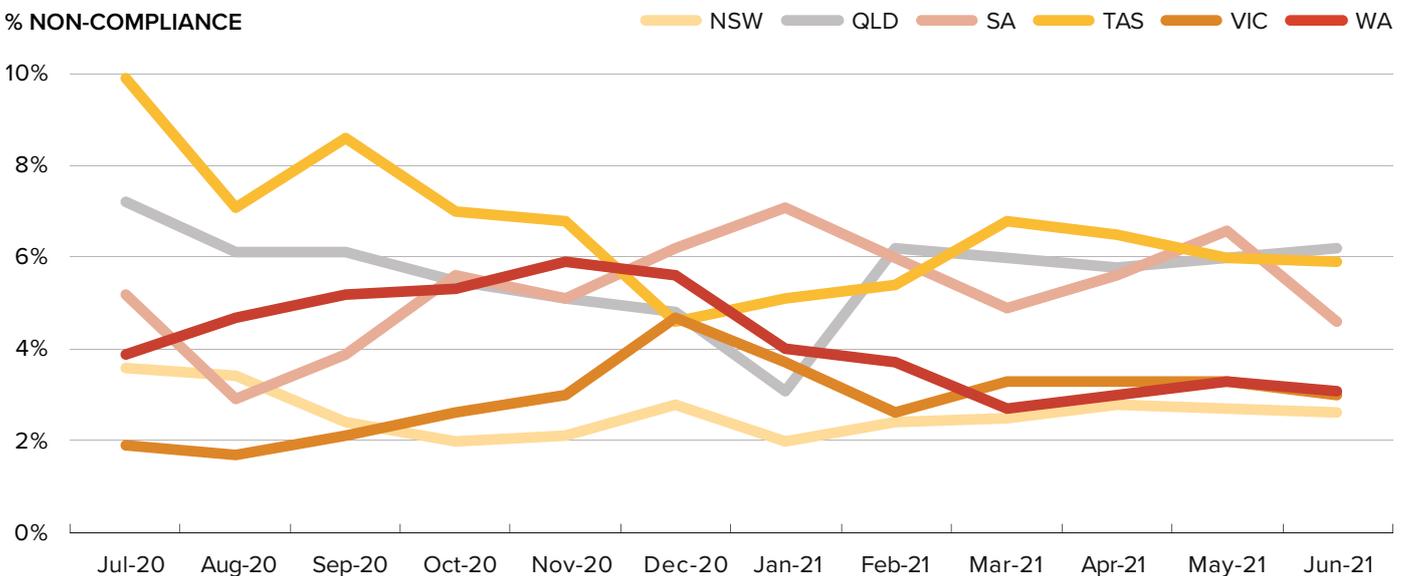


Figure 5. MSA non-compliance by state 2020-21



MSA Index

In 2020-21, the average MSA Index for MSA compliant carcasses in Australia was 57.62, a slight decrease of 0.41 from the record breaking 58.03 national average MSA Index in 2019-20.

The lower national figure was driven by a lower MSA Index for Grainfed cattle, impacted by higher ossification scores and greater hump heights due to growing cattle to heavier carcass weights and nutritional impacts following the drought. There was also an 8% increase in Hormonal Growth Promotant (HGP) usage which has a noticeable impact on the MSA Index score.

The MSA Index figures are 0.87 points higher than 10 years ago, demonstrating continued improvement in the eating quality of Australian beef for the consumer.

- > The average MSA Index for non-Grainfed cattle was 58.69 – a slight increase of 0.04 from the previous year.
- > The average MSA Index for Grainfed cattle was 56.93 – a decrease of 0.75 from the previous year.

Using the MSA Index percentile bands

MSA Index percentiles provide producers with an indication of where their average MSA Index sits in comparison to the performance of others, ranking national data from the bottom 1% to the top 1%.

For example, if your average MSA Index results were equivalent to or higher than 61.19 (Table 1), then your cattle fall into the top 25% for national MSA Index for MSA graded cattle.

Grainfed (accredited) cattle are defined as those that were lot fed at a registered National Feedlot Accreditation Scheme (NFAS) feedlot, and met the Australian Grainfed beef minimum standard specifications.

Non-Grainfed cattle are defined as cattle derived from any production system that did not meet the Grainfed specifications.

Table 1. MSA Index percentile bands

Percentile	National Index	Non-Grainfed Index	Grainfed Index
Top 1%	67.79	66.01	68.25
Top 5%	64.89	63.96	65.67
Top 10%	63.35	62.95	63.72
Top 25%	61.19	61.36	60.98
Top 50%	58.33	59.45	57.07
Bottom 25%	54.58	56.57	53.19
Bottom 10%	50.09	53.59	49.12
Bottom 5%	48.31	51.17	47.86
Bottom 1%	45.82	45.08	45.99

Table 2. Effects of carcass attributes on the MSA Index

Carcass input	Relative importance of these traits in influencing the MSA Index
HGP status	Very high
Milk-fed vealer	Very high
Saleyard	Very high
MSA marbling	High
Hump height	High
Ossification score	High
Rib fat	Medium
Hot Standard Carcass Weight (HSCW)	Low
Sex	Low

Refreshed myMSA portal

myMSA is an online portal where producers can easily access feedback tools, including MSA Index performance, customised reports and benchmarking. In addition, MSA producers can also complete refresher training.

In 2020-21, 3,445 producers utilised the myMSA feedback system 22,407 times – an increase of 38% on the previous year, driven by access to the updated myMSA portal and its many new features to improve decision making. These include:

- > **MSA Opportunity Index:** the MSA Opportunity Index tells you what your MSA Index would have been if non-compliant carcasses met the MSA minimum requirements. It helps you focus your attention on where financial gains can be made and to benchmark carcass attribute performance.
- > **New look and feel:** the myMSA portal has been refreshed to make it easier to use. New features include:
 - » re-designed reports to make interpreting carcass feedback easier
 - » access to enhanced tools including videos and fact sheets
 - » easy navigation on the left-hand menu
 - » help prompts on every page
 - » accessibility on any device.

Predict your MSA Index scores or calculate the impact of changing carcass attributes with the MSA Index calculator
www.mymssa.com.au

MSA producer case study

Unlocking value from MSA data



Robert and Melinee Leather. *Photographer: Jessica Howard*

Running 4,000 head of Brahman and Brahman-cross cattle across nearly 18,000 hectares in Central Queensland, Robert and Melinee Leather along with their son Adam and daughter-in-law Chloe have found MSA feedback invaluable in tracking the performance of their livestock.

Based near Banana, Central Queensland, the Leathers operate both a Brahman-based breeding herd and a finishing operation comprising Brahman crossed with Limousin, Brangus and Senepol, across three properties, 'Barfield Station', 'Four Mile', and 'Hazeldean'.

First registering with MSA in 2007, the Leathers regularly use myMSA to source their carcass feedback.

Targeting turn off carcass weights of between 300-320 kilograms for steers and 260-270 kilograms for heifers, the Leathers sell their cattle into MSA programs at Teys, Biloela, with the remainder going into the Australian Organic Meats program through JBS at Rockhampton.

When it comes to better understanding eating quality performance, Melinee believes tracking animals at an individual level is something that will drive vast improvement.

"We know that we can get straight Brahman returning a really good MSA score, but with a herd of our size it's difficult to pinpoint the genetics of that animal," Melinee said.

"There are Brahman genetics out there that will perform, and we're hoping to be able to follow this on an individual animal level in the future."

Beyond genetics, nutrition is something the Leathers have found to underpin performance of their cattle.

"We've been successful in using our MSA data to identify the impact nutrition has on the performance of our cattle, and we monitor carcasses coming off different feed sources," Melinee said.

"Analysing data from 2016-19, it was clear that compliance dropped during dry spells.

"Combined with things like low stress stock handling and selecting animals on temperament, we graze animals across a mix of buffel, bluegrass, Mitchell grass and Leucaena to get the best results we can, regardless of season."

Ultimately, the Leathers believe that it's only through measurement, monitoring and data analysis that gains can be made.

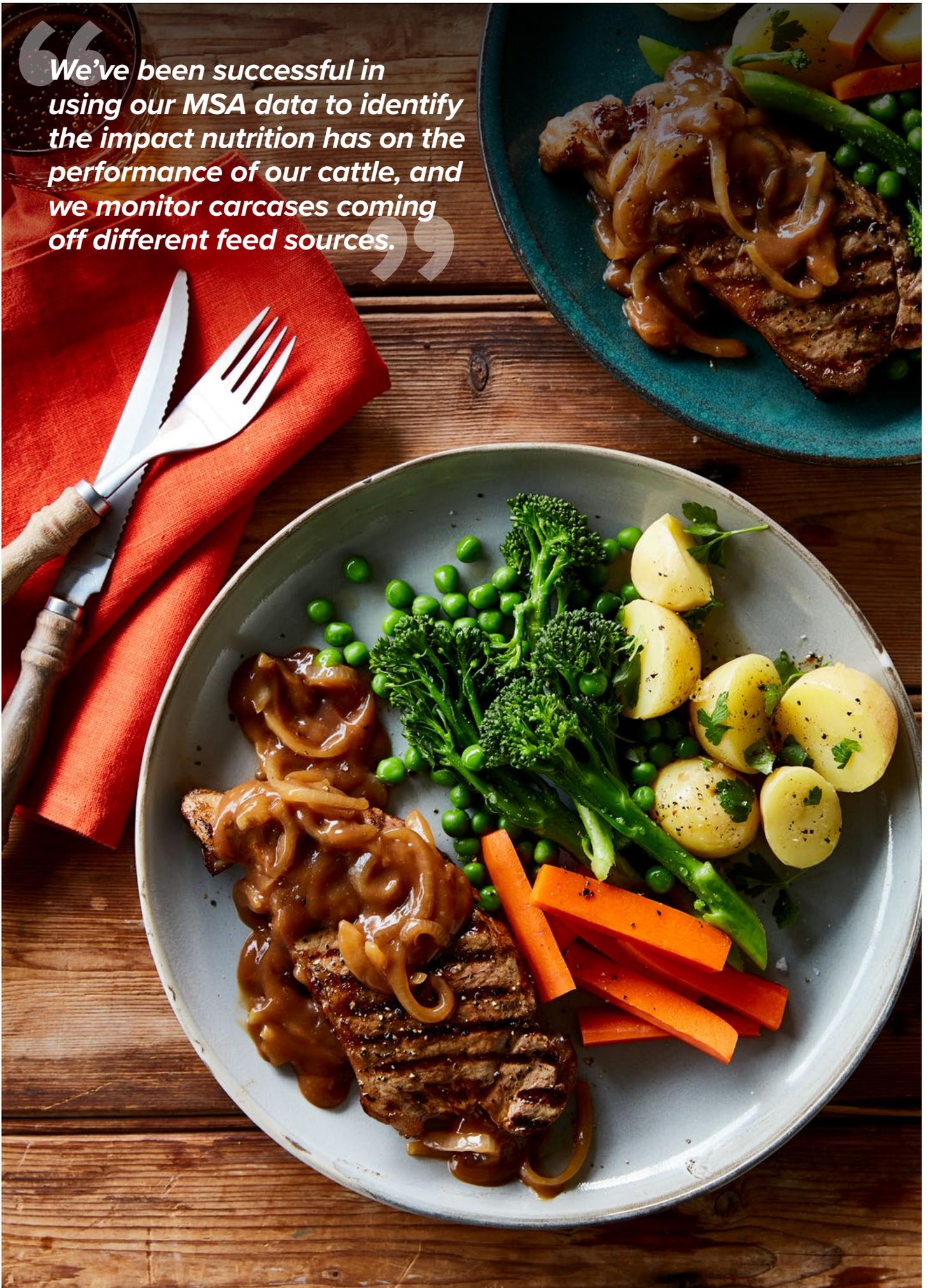
"From the outset, you really need to understand the market you're trying to hit," Melinee said.

"From there, monitoring and measurement can guide the decisions you need to make to get there. We are far from perfect when it comes to data collection, but it can be well and truly worth it.

"If we can follow cattle through and understand why they're performing the way they are, then that helps us understand how to better manage our herd.

"Benchmarking in particular is useful because I like to look at trends in our herd, but also in the context of what's happening around us; is it typical for our area or is it something specific to us that we need to take a closer look at."

“We’ve been successful in using our MSA data to identify the impact nutrition has on the performance of our cattle, and we monitor carcasses coming off different feed sources.”



MSA sheepmeat

All sheepmeat following MSA pathways has met strict criteria to optimise eating quality and meet consumer expectations. In 2020-21, more than 3.4 million sheep followed MSA pathways, through 17 MSA-licenced processing facilities.

This represented 14% of the national lamb slaughter, with 59% of these going into 22 MSA trademarked brands. Of the total lambs processed in Australia, 57% were processed through MSA-licenced processing plants that follow processes to improve eating quality.

An additional 993 sheep producers became MSA registered in 2020-21, taking the total number of MSA registered sheep producers to 26,475. MSA registered sheep producers represent 33% of LPA accredited sheep properties.

MSA, in partnership with key research organisations delivered the first sheepmeat cut by cook method model in 2020-21, based on over a decade of research. While commercial implementation of the model will be dependent on the delivery and adoption of IMF measurement technologies, once implemented, it will allow for processors and brand owners to apply sophisticated eating quality segregation within their supply chains. The commercialisation of the MSA cut by cooking method model will underpin transformational change to the sheepmeat industry to capture more supply chain value.



MSA sheepmeat

By volume, Victoria processed the greatest number of lambs through MSA pathways at **1.3 million head**.

A total of **99%** of all lambs presented for MSA met the program's minimum requirements – an increase of **3% points** on the previous year.



Figure 7. National MSA lamb numbers 2013-14 to 2020-21

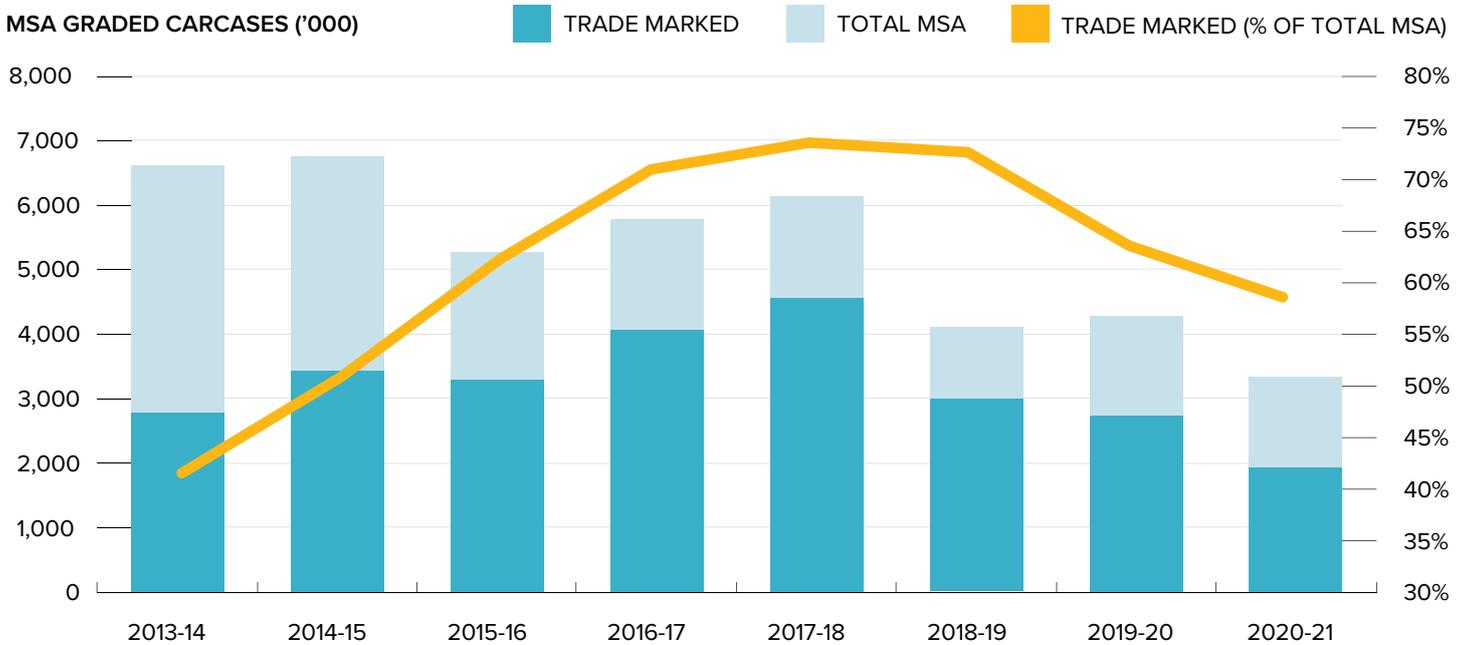
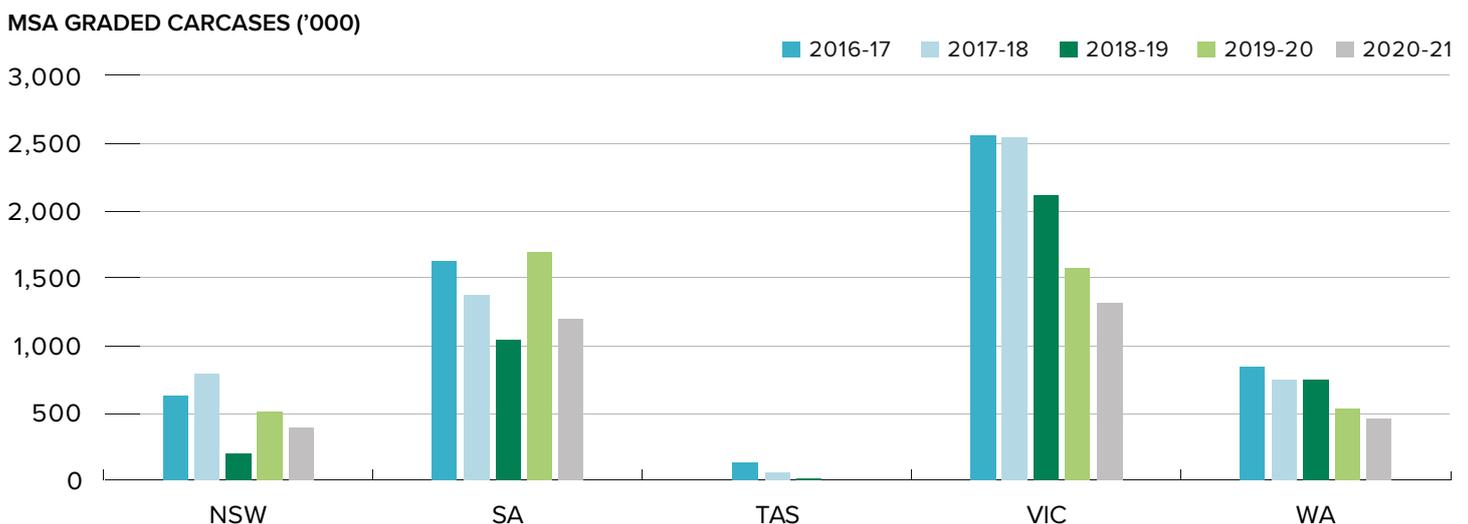


Figure 8. MSA sheepmeat volume by state 2016-17 to 2020-21



Supply chain impact

The MSA program delivers benefits to stakeholders throughout the supply chain from producers through to end users. To maintain and extend the reach of the MSA program, a number of initiatives were held with producers, retailers, wholesalers and food service operators throughout 2020-21.

Education

More than 700 beef and sheepmeat producers received MSA education at 15 producer workshops or information sessions during 2020-21. In addition to this, 300 livestock agents, advisors and industry service providers were also engaged in MSA training and workshops.

MLA is also pursuing opportunities to partner with processors, brand owners and other supply chain partners to establish longer term programs to support producers to make positive on-farm improvements.

In 2020-21, 26 end user outlets including wholesalers, retailers and foodservice operators, participated in MSA training and became MSA licenced operatives.

Refresh your knowledge
of MSA using our online
learning tools at
mla.com.au/msa



Supply chain impact

2,594 cattle and/or sheep producers became registered to supply livestock through the MSA program this year.

Over **2,000** people undertook training via the MSA e-learning portals.

57 operatives across seven processors completed MSA training on the impact of processing on beef or sheepmeat eating quality.

28 new MSA graders were trained and accredited.

MSA price differentials

The National Livestock Reporting Service (NLRS) reported over-the-hook cattle price indicators for MSA cattle as, on average, higher than non-MSA cattle in 2020-21.

Average hot standard carcase weights (HSCW) of MSA graded cattle in 2020-21 were 315kg, a significant increase from the 2019-20 average carcase weight of 279kg.

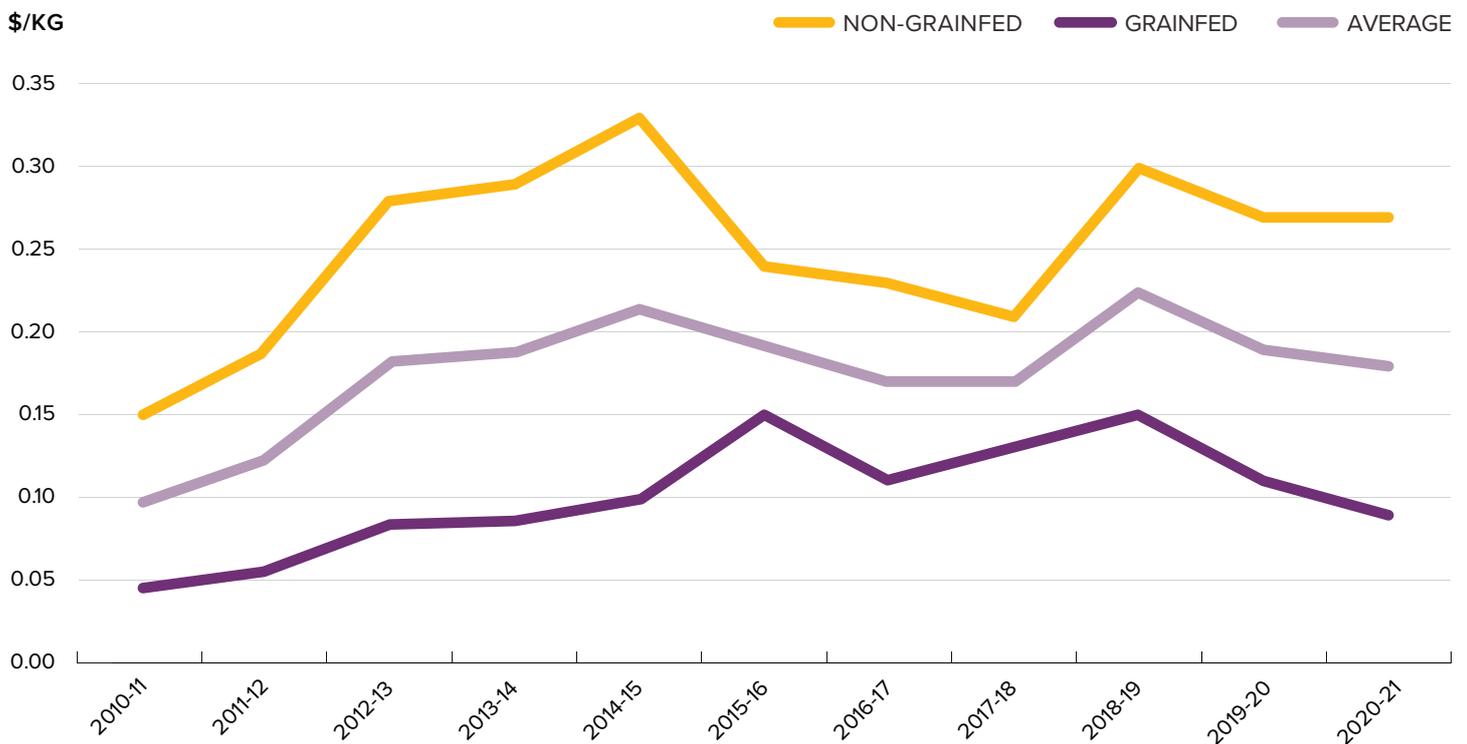
For non-Grainfed cattle, the average carcase weight in 2020-21 was 294kg, and for Grainfed cattle, it was 329kg HSCW.

Based on the average carcase weight of MSA cattle in 2020-21, MSA beef producers potentially received an estimated \$79 per head in additional returns for young, non-Grainfed cattle and \$30 per head for Grainfed cattle that met AUS-MEAT Grainfed specifications.

The average price differential for MSA young cattle (excluding Grainfed cattle) across all weight ranges was **\$0.27/kg**.

The average price differential for MSA cattle that met Grainfed standards was **\$0.09/kg**.

Figure 9. Over-the-hooks price differentials over time



MSA producer case study

Control the key to MSA compliance and consistency



Rob Johnstone and his father, Joe.

Full traceability of their herd's breeding and nutritional background has been fundamental to the success of the Johnstone family's Central Queensland beef enterprise.

Running a herd of 1,200 Droughtmaster, Black Angus, and Santa Gertrudis cross cattle across their 3,000 hectare property 'Can-Berra', near Banana, the Johnstones have a track record of excellent MSA performance, a feat Rob Johnstone attributes to the focus they have on both genetic traits and animal nutrition.

"We first registered with MSA back in 2007, as we could see the industry movement toward eating quality measurement and the principles meshed well with our core breeding objectives," Rob said.

"We sell predominantly into the EU market, and the engine room of our business is undoubtedly our cow herd.

"To maintain both eating quality and climatic adaptability up here, we run two main cow mobs, with Droughtmaster or Santa Gertrudis bulls going over Angus-cross females, and Angus bulls going over the Droughtmaster or Santa females.

"Our bulls play an important role in providing a good end product, and our broad breeding objectives of fertility, growth and market suitability align with MSA objectives."

Nutrition is key

Nutrition is critical from the outset for the Johnstones, with their weaners given access to a formulated ration comprising of silage and hay during the initial two-week weaning window.

"We've found that exposing weaners to this diet in the early days sets them up well to go into our backgrounding system comprising Leucaena, buffel and green panic grass. More importantly it allows for a more streamlined transition onto our finishing ration later in life," Rob said.

"If the season cuts out, we also have the ability to supplement cattle with urea, ammonium sulphate and trace minerals, dispensed using water medicators.

"Making sure our young stock never want for anything during the backgrounding phase helps ensure the quality of the end product, and by running them in one contemporary mob we can easily analyse MSA feedback against their history on-farm, which helps identify issues and eliminate any variables."

MSA recommends that cattle are kept on a rising plane of nutrition at a level that is adequate for growth for a minimum of 30 days prior to consignment, and that cattle are run as one mob for a minimum of 14 days prior to consignment.

Above-average results

The Johnstones placed 55th in the 2019 MSA Excellence in Eating Quality Top 100 for Queensland.

The 2019 Excellence in Eating Quality Awards assessed MSA compliance and Index results from the 2017-19 financial years, during which time the Johnstones consigned 674 head for MSA grading and achieved an average MSA Index of 58.23, which is almost two Index points higher than the Queensland average of 56.26.

They also achieved an average compliance rate of 98.5%, which is more than five percent points higher than Queensland's average MSA compliance rate of 93.3% for the same time period.

From approximately 20 months of age, steers over 480 kilograms and cull females over 420 kilograms go onto a 100-day formulated ration, comprising of roughly 18 kilograms per animal per day on an as fed basis of corn or barley silage, grain and straw.

"We make minor tweaks in the feed ration depending on season, but have been fairly consistent in this approach over the years and this consistency is reflected in our MSA data," Rob said.

"Because we can fully control the animal's nutrition in the feedlot setup, and we grow most of our own silage, grain and hay, we are able to keep the quality and nutritional value high which has a direct correlation with the animal's performance."

Outside the feedlot, the Johnstones rotationally graze their cattle which helps them further enhance animal nutrition by ensuring there is a bulk of nutritious feed ahead of the mobs every time they are moved.

Finessing the end article

Rob said beyond managing nutritional variables, they also aim to run a mostly self-replacing herd.

"This gives us a really good understanding of what animals we have from the get-go and gives us near total control, both in terms of nutrition and other important genetic traits like temperament, which we know directly correlate to the quality of the end product," Rob said.

"We've found this consistency to be absolutely critical to our MSA compliance, as it's only when you can eliminate variables that you can really finesse the end article."

The Johnstones see the MSA framework as key to better outcomes for the whole supply chain.

"Indirectly, whether you're selling straight off the mother or into a feedlot, if you can align your production objectives with the MSA framework, then your customer is going to prefer your cattle because they can be assured that the outcomes align with their expectations," Rob said.

"Looking critically at your production system and using MSA feedback to identify opportunities will ultimately lead to the production of better cattle, and enhance relationships with your customers, whoever they are."



Supply chain impact – end users

High quality, along with consistency of products, are the two main reasons independent butchers and wholesalers sell meat underpinned by MSA.

Butchers and wholesalers sell MSA products at a higher price differential than non-MSA products.

The average price differential for MSA beef compared to equivalent non-MSA cuts at independent butcher stores was \$2.77/kg, while at wholesalers, the average price differential was \$1.97/kg.

MSA cube rolls averaged the highest price differential at \$3.70/kg followed by tenderloin at \$2.70/kg.

The average price differential for MSA lamb compared to the equivalent non-MSA cuts at independent butcher stores was \$0.88/kg, while at wholesalers, the average price differential was \$2.13/kg.

MSA lamb cutlets averaged the highest price differential at \$1.70/kg.

Seven new brands became MSA licenced, taking the total to **205**.

66% of surveyed butchers and wholesalers rated their satisfaction with MSA-graded meat as ‘very good to excellent’.

63% of wholesalers found it important to have MSA as part of their beef product offering.

42% of wholesalers rated the usefulness of the MSA program to their business as extremely useful or very useful.

As of 30 June 2021, **1,121** end users representing **3,425** outlets, were licenced to promote and sell MSA products.

Figure 10. Average retail price differentials 2020-21 – MSA beef

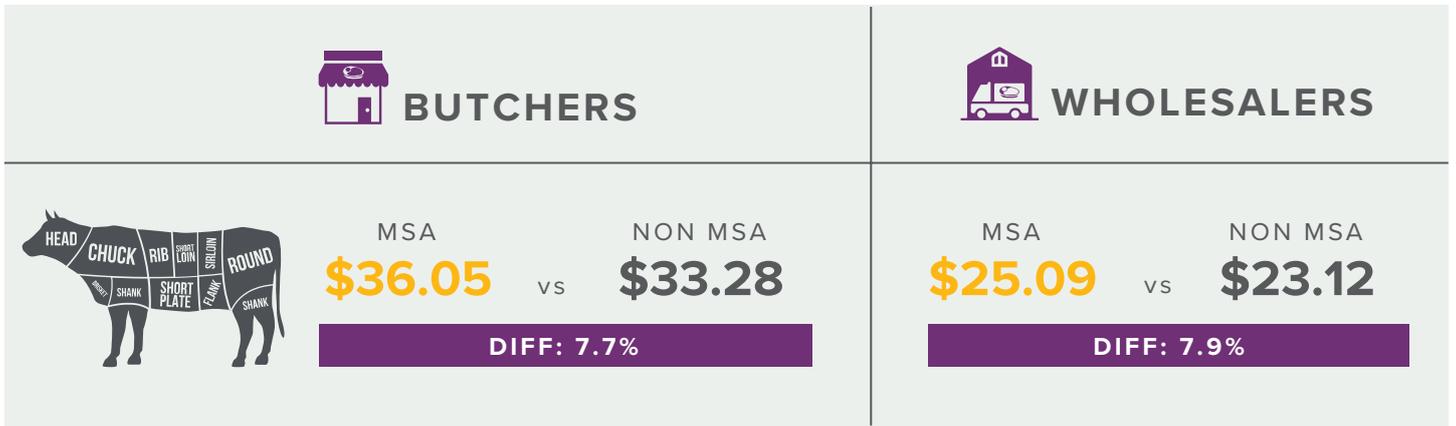
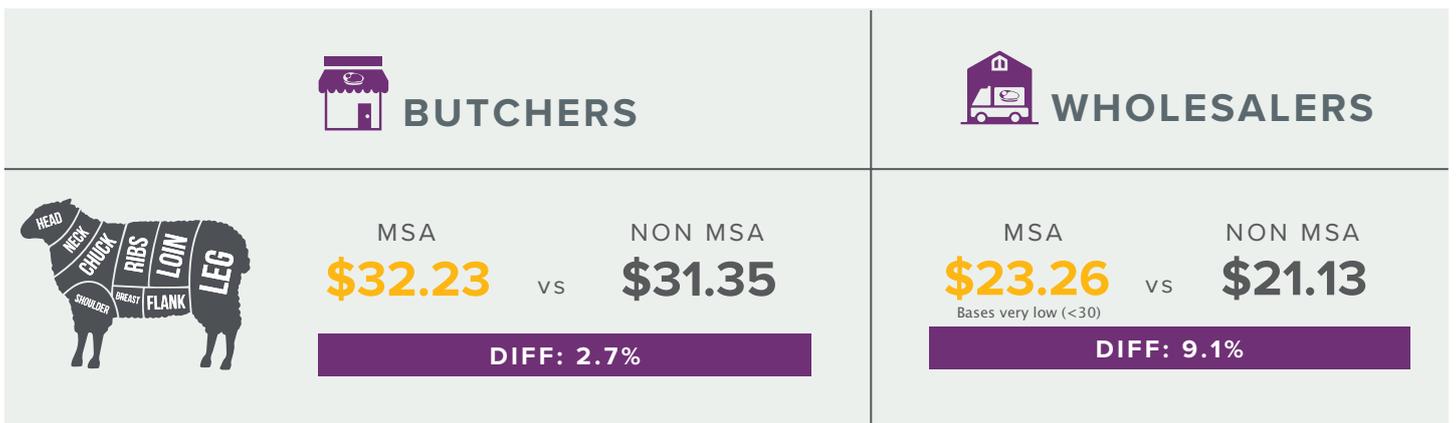


Figure 11. Average retail price differentials 2020-21 – MSA lamb



MSA producer case study

MSA data reveals link between eating quality and lifetime weight gain



Bill and Jacqui Mitchell, 'Glenbrook', Aberfoyle, NSW.

Producing cattle with improved eating quality is the name of the game for Aberfoyle producers Bill and Jacqui Mitchell, with close analysis of both MSA feedback and their own on-farm records showing a link between an animal's lifetime weight gain and the quality of its beef.

Running up to 2,500 head of predominantly Angus and Angus cross weaners or yearlings across the 1,625 hectare 'Glenbrook', near Armidale, NSW, the Mitchells sell directly into Coles' certified grass-fed program.

Acknowledging that improved eating quality is critical to strong and lasting relationships with the customer, the Mitchells first started using MSA feedback over a decade ago as they set out to enhance their product.

"The MSA Index has been extremely helpful in giving us an objective set of data we can use to fine tune our program," Bill said.

"We keep a close eye on key performance measures from a meat quality point of view, and then periodically we'll go into our database and look for opportunities to improve.

"We've done a lot of analysis on ways to improve eating quality, and combined with non-MSA data we collect, we've found animals with better lifetime weight gain consistently return higher marbling and lower ossification data, therefore higher MSA indexing."

This analysis has led the Mitchells to target animals with good weight for age and no historical nutritional setbacks, which are then maintained on a rising plane of nutrition until they are turned off at a target carcass weight of 250 kilograms.

"We mostly buy local cattle, as well as some straight lines of grassfed cattle through AuctionsPlus. While this approach can lead to you purchasing heavier animals up front, it's about evaluating not only what a mob costs you but also what it's actually worth to you," Bill said.

"For us, ensuring consistently high eating quality is worth a lot, as it enables us to strengthen our relationships with the customer."

Using technology and data

Sown to 100% improved pastures like tall fescue, rye grass, herbs and clovers, the focus at 'Glenbrook' is very much about maintaining lifetime weight gain through the use of technology and data.

"We run a pretty intensive and high input system," Bill said.

"Our default setting is to always maximise the nutrition of our animals, and we use a combination of both MSA and on-farm data to ensure our understanding of an animal's performance is as accurate and current as possible."

For other producers considering ramping up their use of the MSA system, the Mitchells believe it has been invaluable to their success.

"We are very focused on delivering a product that provides an excellent eating quality experience for the consumer," Bill said.

"At the end of the day, eating quality is the key to getting them back to buy beef week after week, and as an industry it's absolutely critical we maintain our focus on the eating quality of the beef we're producing."

Research & development

Investments into MSA research and development (R&D) aim to make all cattle and sheepmeat eligible for MSA, as well as focusing on technologies and traits to ensure consistent consumer outcomes.

Investments being made into eating quality R&D will provide beef and sheepmeat brand owners with a competitive advantage, allowing them to reinforce their brand's eating quality to consumers.

In a market of rising red meat prices and fierce competition from alternative proteins, opportunities exist to improve the eating quality of red meat and retain consumer confidence in the industry.

R&D delivers benefits to industry by:

- > creating the opportunity for beef and lamb supply chain participants to capture greater value and increase the profitability of the Australian red meat industry
- > helping to underpin Australian red meat brands and differentiate their products from competitor countries and proteins
- > delivering price differentials for MSA-compliant cattle, which improves the return on investment for producers and brand owners.



Research & development

In line with the *MLA 2025 Strategic Plan*, MSA research priorities in 2020-21 included:

- > the development of a cut by cook method grading model for sheepmeat, to revolutionise the value of eating quality to the sheepmeat industry, including ongoing research to expand cut by cook method options
- > supporting the validation and commercialisation of objective camera technology for carcass grading, including six validation and data collection activities. This included a collaborative MLA team working for 10 weeks to fast-track the commercialisation of these technologies, with data collection on 2,000 carcasses, in preparedness for AUS-MEAT accreditation
- > the investment in tools to predict eating quality and compliance for live animals and carcass sortation, including the use of biomarkers and skin/hair samples
- > the continuation and/or completion of key beef and sheep research to expand the eligible MSA pathways including:
 - » understanding the eating quality of Australian Wagyu and young entire males
 - » optimising eating quality outcomes for cull cows and dairy beef pathways
 - » determining the eating quality impact of rail transport
 - » identifying a possible MSA veal pathway
 - » exploring further MSA saleyard pathways, including refeeding periods
 - » investigating the eating quality of hoggets
 - » understanding the eating quality of Merinos.



Figure 12. Beef loin muscle presented for grading as part of the dairy beef supply chain project.



Figure 13. Showing evidence of both high and low intramuscular fat contents in MLA Resource Flock lamb loins.

Supporting the research projects, over 19,000 consumers participated in taste testing panels for over 130,000 meat samples.

In a first for the sheepmeat industry, a sheepmeat cut by cook model was developed. This development is the result of over 10 years' worth of research, with the industry advocating for a model to be released and implemented as a high priority. With the delivery of the model, MSA has begun a range of industry activities and consultation to prepare for future commercialisation. The process is aiming to understand:

- 1) the value proposition and interest to adopt the model
- 2) the practical and system implementation requirements
- 3) understand the range in eating quality across Australia through benchmarking activities.

Research & development



Figure 14. Samples from Wagyu eating quality trial prepared for consumer sensory testing.

Data to capture further carcass value

To support the use of data to identify opportunities for capturing further value from MSA graded carcasses, new data is being generated.

A custom data analytics toolbox was released to MSA processors and brand owners, giving them access to Lean Meat Yield (LMY) data generated for more than 33 million MSA beef carcass records since 2010, representing 37% of Australian cattle slaughter.

LMY refers to the proportion of a carcass that is composed of lean tissue or muscle (as opposed to bone and fat) and is expressed as a percentage. The average LMY across all MSA carcasses in 2020-21 was 58.6%, and ranged from less than 45% to greater than 63%.

The LMY predictions have been generated using an equation formulated through the Advanced Livestock Measurement Technologies (ALMTech) initiative that uses carcass weight and rib fat as inputs, and will continue to be refined as yield technologies are adopted.

Table 3. National Lean Meat Yield percentile bands for MSA graded beef carcasses

Percentile	Lean Meat Yield %
Top 1%	63.4
Top 5%	62.8
Top 10%	62.1
Top 25%	61.1
Top 50%	59.2
Bottom 25%	57.1
Bottom 10%	54.1
Bottom 5%	52.4
Bottom 1%	47.2

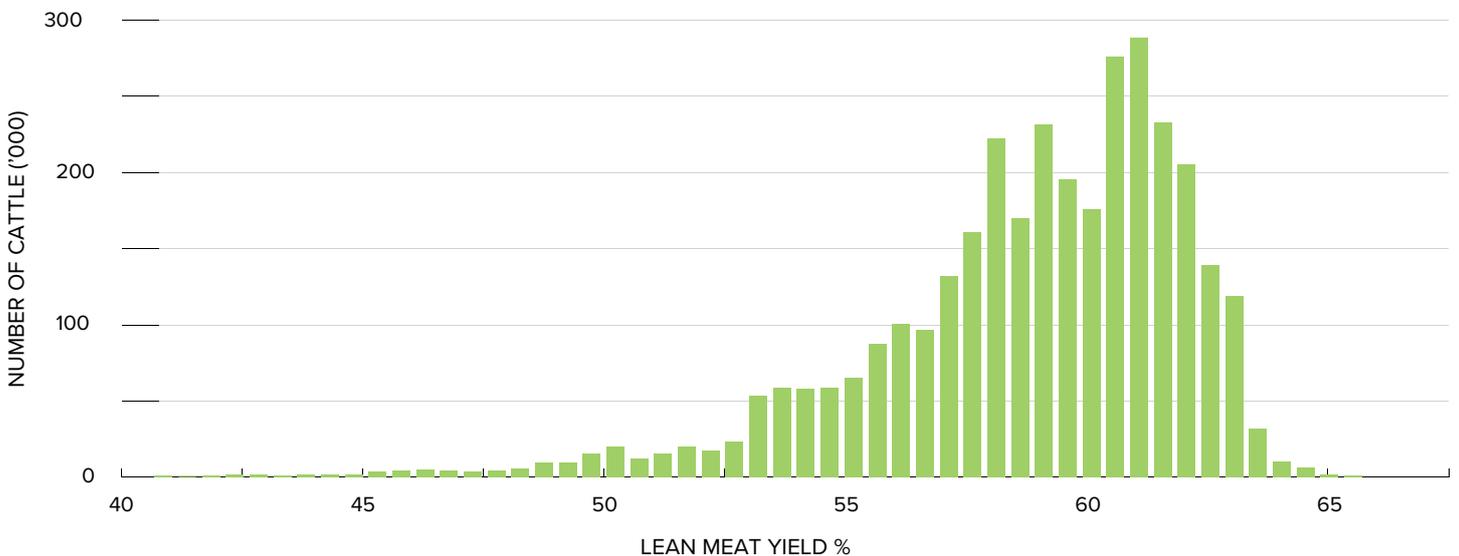
The toolbox revealed for 2020-21, there was a large variation in eating quality (of more than 40 MSA Index points) and approximately 16% variation in LMY across MSA graded carcasses (see Figure 15 below), equating to approximately 45kg difference in the amount of meat in the average carcass.

In time, other traits such as animal health could be included in this carcass feedback to construct a more holistic view of carcass value as well as expand the toolbox for producer access.

The availability of such data equips processors and brand owners to potentially improve their supplier performance through rewarding for true carcass value.

This also reduces the under or overpayment for high and low performing carcasses. This ultimately incentivises industry to improve performance and play an important role in contributing to the industry’s objective of doubling the value of red meat sales.

Figure 15. 2020-21 National Lean Meat Yield distribution for all cattle types



Program integrity

Throughout 2020-21, 519 audits were conducted on MSA licensees from saleyards and processors, through to retailers, wholesalers, supermarkets and foodservice outlets.

MSA also conducted 82 plant integrity checks. These occurred both remotely and through on-site visits with MSA-licensed processors to support their continued success in utilising the MSA Standards. MSA completed 229 MSA grader checks on active MSA graders around Australia.

In 2019-20, 8.1% of end user outlets audited received corrective action requests (CARs), 4% of saleyards audited received CARs and 2.7% of processors audited received major CARs.

MSA retained certification to ISO 9001:2015 Standards.

In export markets, the United States Department of Agriculture (USDA) again approved MSA as a Process Verified Program (PVP) with more brand owners taking up the opportunity to use the USDA PVP shield on their MSA product in the United States.

519 MSA audits conducted.

229 grader checks undertaken.

82 plant integrity checks completed.





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