Final report

Carcase competition producer engagement

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The concept of the LambEx Feedlot Carcase Competition originated from LambEx 2024 Chair, Jason Schulz, who led the LambEx 2024 carcase competition organising committee consisting of Alex McGorman (Thornby Feedlot), Rachael Withers (The University of Adelaide), Elke Hocking (Elke Hocking Consulting), David Packer (MLA MSA) and Mark Inglis (TFI).

The organising committee acknowledges the following for their huge voluntary and sponsorship contributions to the LambEx 2024 carcase competition in assisting with data collection:

- Alex and Fiona McGorman and Mel Simounds (Thornby Feedlot)
- Trans-Australia Livestock (Thornhills)
- Paul Burgemeister (Nutrien wool)
- Dale Flanigan (Meat Data Logic)
- Mark Inglis (Farm Assurance and Supply Manager, TFI)
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- MEQ team (MEQ) https://www.meqprobe.com/
- Farrah Preston (The University of Adelaide)

Abstract

The Australian Meat Processor Corporation (AMPC) LambEx Feedlot Carcase Competition was a collaboration between AMPC, Thomas Foods International, Thornby Feedlot and Meat & Livestock Australia (MLA) to deliver Australia's first Meat Standards Australia (MSA) graded lamb feedlot carcase competition.

This project enabled Elke Hocking Consulting to provide support to the carcase competition organising team as well as follow-up workshops with producers to help them understand their carcase results and identify on-farm practice changes to improve carcase outcomes and productivity.

Twenty-six lamb businesses received comprehensive fleece, feedlot and carcase data on lambs entered into the competition. The interactive online and face-to-face workshops improved their understanding of how to evaluate their current genetics and modify their breeding objective accordingly to meet future customer demands.

Individual presentations in the workshop allowed peer-to-peer learning, with one written up as a case study (see Appendix). The case study business demonstrated the genetic progress they had made in eating quality traits linked to their participation in the pilot workshop of *Meat the Market – lamb compliance* in 2019.

This project provides a framework that can be used by future industry carcase competition organising committees, as it provides methodology, learnings and feedback from producers involved in the competition.

Executive summary

Background and Objectives

The Australian Meat Processor Corporation (AMPC) LambEx Feedlot Carcase Competition was a collaboration between AMPC, Thomas Foods International, Thornby Feedlot and Meat & Livestock Australia (MLA) to deliver Australia's first Meat Standards Australia (MSA) graded lamb feedlot carcase competition.

This project enabled the consultant to provide support to the carcase competition organising team, including feedlot and carcase data analysis and follow-up support for producers involved in the competition. Coordination, development and delivery of one online workshop as well as a plant tour and face-to-face workshop at TFI Stawell was conducted. These activities aimed to help producers understand their results and identify on-farm practice changes that will improve carcase outcomes and productivity.

This project enabled the consultant to support the carcase competition organising team with ongoing feedlot and carcase data analysis as well as provision of follow-up support for participating producers, through the coordination, development and delivery of online and face-to-face workshops as well as a processing plant tour to TFI Stawell. The aim of producer engagement following the competition, was to assist producers:

- understand lamb carcase competition feedback,
- identify on-farm practices to improve lamb production and carcase compliance,
- understand future grids and customer requirements.

Methodology

As a follow-up to the inaugural LambEx carcase competition, the competition organising team hosted a brief 1.5hr online meeting to provide a summary of the results and seek feedback on how the competition could be improved in the future.

Producers were offered a tour of the TFI Stawell processing facility, where the carcase competition lambs were processed, followed by a deeper dive into their carcase results and how they reflected their breeding objectives, as well as the opportunity to network and learn from each other through facilitated discussion and individual producer case study presentations.

Results/key findings

This project provides a framework that future industry carcase competition organising committees can use, as it provides methodology, learnings and feedback from producers involved in the competition.

The interactive workshops helped producers understand their carcase results and identify on-farm practice changes to improve carcase outcomes and productivity. Individual presentations in the workshop allowed peer-to-peer learning, with one written up as a case study (see Appendix). The case study business demonstrated the genetic progress they had made in eating quality traits linked to their participation in the pilot workshop of *Meat the Market – lamb compliance* in 2019.

Benefits to industry

This project provided an opportunity to document the LambEx carcase competition methodology so that future industry carcase competition organising committees can use it. It provides information on what was done and why, as well as learnings and feedback from producers involved in the competition.

The support provided to the 26 lamb businesses involved in the competition will enable these producers to more effectively evaluate their current genetics in relation to fleece, growth rate and carcase performance, and modify their breeding objective accordingly to meet future customer demands and profitability of their enterprises.

Future research and recommendations

This model is a continuation of the successful producer engagement activities conducted in the Advanced Livestock Measurement Technologies (ALTMTech) for globally competitive Australian meat project (*Hocking, E, 2022).*

Future R&D should continue to work with processors to overcome the issues associated with inaccurate (hook) tracking of carcases from slaughter through to the grading station, as well as the development of automated objective carcase measurement technologies that can operate at commercial processing chain speeds. This is the main barrier preventing processors from delivering enhanced individual carcase data, including an MSA Index, to producers.

In the interim, industry should support carcase competitions and producer trials (i.e. Producer Demonstration Sites) to work with individual processors and the MSA team to obtain enhanced carcase data, including MSA index, so that proactive producers can start making on-farm decisions to improve eating quality as well as developing relationships with processors. Hopefully, this report can be used as a useful resource for future carcase competition and trial organisers.

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1. Background

1.1 AMPC LambEx 2024 Feedlot carcase competition

The Australian Meat Processor Corporation (AMPC) LambEx Feedlot Carcase Competition was a collaboration between AMPC, Thomas Foods International, Thornby Feedlot and Meat & Livestock Australia (MLA) to deliver Australia's first Meat Standards Australia (MSA) graded lamb feedlot carcase competition.

Table 1: List of contributors to the 2024 LambEx Feedlot Carcase Competition

LambEx Feedlot Carcase Competition Organising Committee		
Jason Schulz – Chair of the Committee	Schulz Livestock	
Alex McGorman*	Thornby Feedlot	
Elke Hocking*	Elke Hocking Consulting	
Mark Inglis*	Thomas Foods International	
David Packer*	MSA Program Manager, MLA	
Rachael Withers*	The University of Adelaide	
Coordination, assistance and data analysis (trucking, shearing, feedlot, processing)		
Thornhills	Trans-Australian Livestock	Delivery of lambs to feedlot
Paul Burgemeister	Nutrien Wool	Fleece value assessment
Fiona McGorman	Thornby Feedlot	Feedlot data alignment
Mel Simounds	Thornby Feedlot	Feedlot data alignment
Rachael Withers	University of Adelaide	Processing coordination
Farrah Preston	The University of Adelaide	Processing assistance
Dale Flanigan	Meat Data Logic	eID hook tracking
MEQ team	MEQ	IMF measurement

** Also provided slaughter coordination and assistance*

2. Objectives

This project enabled the consultant to support the carcase competition organising team with ongoing feedlot and carcase data analysis as well as provision of follow-up support for participating producers, through the coordination, development and delivery of online and face-to-face workshops as well as a processing plant tour to TFI Stawell.

This objective was met successfully, with data analysis completed by August 2024 prior to the LambEx event being held, one follow-up online workshop delivered to competition participants on the 25th of November 2024, and a face-to-face workshop and processor tour delivered to producers on the 9th of April 2025 at TFI Stawell processing facility.

A summary of the producer feedback from the workshop was delivered to the 2026 LambEx Carcase Showcase Committee which collates learnings and recommendations for future competitions.

The aim of producer engagement following the competition was to assist producers:

- understand lamb carcase competition feedback,
- identify on-farm practices to improve lamb production and carcase compliance,
- understand future grids and customer requirements.

Throughout the workshops, producers gained a better understanding of customer specifications and MSA lamb, as well as being presented with a realistic view of when lamb will be sold under value-based payment systems. Peer-to-peer learning was a key feature of the face-to-face workshop with producers sharing information about their lamb enterprises, including their breeding objectives and carcase competition performance.

The case study demonstrated how engagement of one producer within an earlier pilot program for the PGS Lamb Compliance workshop (MLA PGS Meat the Market) led to an increased focus on eating quality traits within their breeding objective that has now been reflected in the data that they saw from the lamb carcase competition.

Producer feedback from the current project indicated the value to their business was 8.2 out of 10 and that for several businesses, the carcase results of the competition confirmed their breeding objective was heading in the right direction. Other actions producers reported were to start looking at breeding values for eating quality traits, benchmarking their current ram team and continuing to enter lambs into competitions such as this to obtain more comprehensive carcase data.

3. Methodology

3.1 Methodology for LambEx Feedlot Carcase Competition

3.1.1 Feedlot entry

The terms and conditions of the LambEx Feedlot Carcase Competition were as follows:

- Enter 50 vendor-bred 2023-born woolly lambs.
- Delivery early December 2023 to Thornby Feedlot – Sanderston, South Australia.
- Entry weight between 35-42kg curfew live-weight.
- Lambs purchased by Thornby on delivery at the current per kilogram market rate.
- Lambs to be feedlot for 70 days & processed at Thomas Foods International Stawell (Grid 22-30kg dressed carcase weight).
- Collaborative freight to the feedlot can be arranged at entrants' expense.
- Carcases to be assessed under Meat Standards Australia (MSA) guidelines.

A total of 1,500 lambs, representing 16 different breeds, from 26 producers across Australia (NSW, VIC, SA and WA) were delivered to Thornby Feedlot, Sanderston, SA over 3 days between the 1st and 3rd of December 2023.

Trans-Australia livestock sponsored the competition and delivered livestock free of charge to designated delivery depots for interstate producers. Once at the feedlot, lambs were shorn and fleeces weighed, and samples sent off for wool testing. Individual liveweights were recorded against eID tags, and each group of 50 lambs were placed under the same conditions and fed the same rations for 72 days into one of three pens according to delivery date (as shown in Table 2).

Table 2: Timeline of lamb groups from feedlot to processing

Groups delivered and weighed into feedlot	Weighed out of feedlot	Delivered to TFI	Processed TFI
6 groups (300 lambs) 1/12/23 – Pen 1	11/2/24	12/2/24	13/2/24
12 groups (600 lambs) 2/12/23 – Pen 2	12/2/24	13/2/24	14/2/24
12 groups (600 lambs) 3/12/23 – Pen 3	13/2/24	14/2/24	15/2/24

3.1.2 Feedlot producer day at Thornby

On the 9th of February 2024, the producers were invited to view their lambs at the feedlot prior to being processed the following week.

3.1.3 Processing at TFI Stawell

Lambs were processed across three days from the 13th to the 15th of February 2024 with a team of eight people each day to scan, tag, track and trace carcase identification as a backup method of traceability (in support of RFID tracking at the processing plant.)

- eID scanned at pre-knocking with RFID wand: 1 person.
- Body tags attached to hock post skin pull, pre-offal stations: 2 people.
- Carcasses noted for trim (animal health identified- i.e. pleurisy, arthritis): 1 person.
- All lambs through DXA – 1 person recording/monitoring DXA order.
- MEQ probe used on all lambs to measure IMF just prior to weigh station - 2 MEQ staff.
- Body tag order recorded at hot weight scales – 1 person.

Body tags remained on carcasses in the chiller until following morning until data was confirmed. Whites, gumboots & PPE supplied by TFI.

3.1.4 Carcase competition data analysis

Data was collated and analysed by a team of people from the carcase competition organising committee (Table 1). Data collected and analysed included:

Fleece data: age at shearing, wool yield, micron, SD (standard deviation), CV% (coefficient of variation), CF% (comfort factor), Curvature, Deviation, staple Length (mm), kg greasy fleece weight (GFW)(adjusted to 6 months), price $/kg GFW, Wool $/head (6 months), Wool $/team.
Feedlot data: compliance to entry weight (percentage that were 35-42kg), liveweight at entry (kg), liveweight at exit (kg), calculated average daily gain (ADG) (g/head/day).
Carcase data: Hot standard carcase weight (HSCW kg), Fat score (mm), DXA data – lean %, fat %, bone %, MEQ Intramuscular fat (IMF%), Dressing %, calculated MSA Index.

Data was collated into a single spreadsheet for final analysis by David Packer. The weightings for the awards were determined by the organising committee and were as follows:

Overall Feedlot
1. Wool 10%
2. ADG 65%
3. Compliance 25% (35-42kgs on entry)

Overall Carcase
1. HSCW 30% (22-30kgs)
2. LMY 20% (>50%)
3. Fat Score 10% (6-20mm / Fat Score 2-4)
4. MSA Index 40% (>59)

Australia's Top Performing Lamb Producer (everything combined)
1. Feedlot 30%
2. Carcase 70%

3.1.5 LambEx 7-9th August 2024

At the LambEx Conference, several presentations on the main stage discussed the importance of MSA for sheepmeat, the variation in eating quality seen in the carcase competition and the presentation of the results of the carcase competition.

- Dr Peter McGilchrist: The significance of MSA for sheep.
  - https://www.youtube.com/watch?v=-0yemzTQN9c
- LambEx 2024 AMPC Feedlot Carcase Competition: David Packer, Mark Inglis, Chris Taylor (AMPC).
  - https://youtu.be/_x8UWOcFSW4?si=_avAnb0X28Tbq6O4
  - This presentation includes a three-minute video (filmed at the feedlot, TFI Stawell processing plant and interviews with key carcase competition personnel and producers involved in the competition).

Awards were acknowledged at LambEx and included:

- Feedlot Awards – compliance, highest average daily gain (ADG) whilst on feed, highest wool clip value and health & resilience.
- Carcase Awards – highest dressing percentage for group, highest MSA indexing group as an indicator of eating quality, highest value group of carcases and most compliant.
- Overall Awards – combined feedlot and carcase performance awards.

Due to confidentiality of results prior to announcement at LambEx, the results were not sent out until after the completion of the conference. The full results (individual lambs) were then sent out to producers who entered lamb teams into the competition. All participating producers were issued with a unique vendor number and lot number (1-30) representing the individual lamb teams to respect producer confidentiality.

3.2 Methodology for LambEx producer engagement

3.2.1 Online producer workshop, 25th of November 2024

As a follow-up to the inaugural LambEx carcase competition, the competition organising team hosted a brief 1.5hr online catch-up meeting.

Monday 25th November 8.30am – 10am (ACST)
David Packer went through a summary of the results, plus some R&D information that helped explain the results observed in the competition.

This was followed by a facilitated Q&A session with Mark Inglis, David Packer, Alex McGorman and the other members of the competition organising team.

Producers were asked to send in questions and expectations prior to the meeting, as well as any constructive comments on how the competition could be improved in the future.

3.2.2 Processor tour and producer workshop, Stawell 9th of April 2025

Producers were offered a tour of the TFI Stawell processing facility where the carcase competition lambs were processed, followed by a deeper dive into their carcase results and breeding objectives, as well as the opportunity to network and learn from each other.

Itinerary 9th April 2025, Stawell

- Tour of processing facility TFI Stawell.
- Workshop at the Grampians Health Centre.
    - Introduction of business (5 minutes each: sheep enterprise, target market, has the data been useful to your business?)
    - Lamb market update (Mark Inglis), MSA discussion (Technology and research updates) - David Packer, Rachael Withers, Elke Hocking.
    - Individual producer presentations on how the data has been used within the business. (James Starling, Graham and Sam Clothier, Henry Good and Russell Luhrs).
    - Further peer-to-peer discussions and Q&A.
    - Feedback for the 2026 LambEx Carcase Competition Working Group.

Table 2: Session plan for producer workshop, Stawell 9th April 2025

Time	**Topic /content**	**Delivery Mode: Resources**	**Deliverer**
11.30am-1.30pm	Introduction of self / business - Who, location, seasonal conditions - Describe sheep operation and target market. - Further Q&A expectations for today	Participants (around the group) Elke capture expectations and questions	Elke
1.30-2pm (30 mins)	Lunch Whiteboard questions (competition evaluation)	Lunch	
2pm-3.00pm	Mark Inglis - lamb market insights and processor update David Packer - MSA update and research	PowerPoint slides and interactive presentation	Mark David Elke
3.00-3.15 3.20-3.35 3.40-3.55 4.00-4.15	Individual presentations Sam Clothier Henry Goode James Starling Russell Luhrs		
4.30pm-5.30pm	David Packer MSA and further group discussion - What was the most interesting thing you saw / heard today? - Will you do anything different? - Competition evaluation.	Capture on flipchart	Mark David Elke Jason

4. Results

4.1 Producer engagement

4.1.1 Feedlot producer day at Thornby

On the 9th of February 2024, participating producers attended Thornby feedlot, Sanderston, to view carcase competition lambs prior to being processed.

Figure 1: Producers at Thornby feedlot

Figure 2: Inspection day at Thornby feedlot

4.1.2 Carcase competition results presented at LambEx

AMPC Australia's top performing lamb producer:
Winner: Ricky & Marni Luhrs, Yama Trust - Mooralla Merinos
2nd place: Barooka Trading Trust - Henry Goode (Merino x Merino)
3rd place: Barooka Trading Trust - Henry Goode (Merino x Merino)

Trans Australia – Highest Feedlot ADG lamb team
Winner: Cazna Park - Cameron Macpherson (Poll Dorset x XB)
2nd place: North Stirling Downs Pty Ltd - Wayne Pech (Suffolk x Suffolk)
3rd place: Manyondah Pastoral Trust - Hamish Ellis (Poll Dorset x Composite)

Nutrien Wool – Most valuable lamb team wool clip
Winner: Pepper Well Partners - Hansi Graetz (Merino x Merino)
2nd place: Karradale Trading - Craig & Anna-Lisa Newman (Merino x Merino)
3rd place: Allan C Jacka & Sons - Neville Jacka (Merino x Merino)

Thornby – Overall Highest Feedlot Performing lamb team
Winner: Stopp Family Trust - Samantha Stopp (Texel x Merino)
2nd place: Monapilla Estate Pty Ltd - Henry Beal (Suffolk x Suffolk)
3rd place: North Stirling Downs - Wayne Pech (Suffolk x Suffolk)

Meat & Livestock Australia – Highest MSA Sheepmeat Index lamb team
Winner: Barooka Trading Trust - Henry Goode (Merino x Merino)
2nd place: GW & CL Clothier & Sons - Sam Clothier (White Suffolk x White Suffolk/Merino)
3rd place: Yama Trust - Mooralla Merino - Ricky & Marni Luhrs (Merino x Merino)

Thomas Foods International – Overall Highest Carcase Performing lamb team
Winner: Barooka Trading Trust - Henry Goode (Merino x Merino)
2nd place: Barooka Trading Trust - Henry Goode (Merino x Merino)
3rd place: Yama Trust - Mooralla Merino - Ricky & Marni Luhrs (Merino x Merino)

Figure 3: Awards were presented to producers at the LambEx 2024 conference.

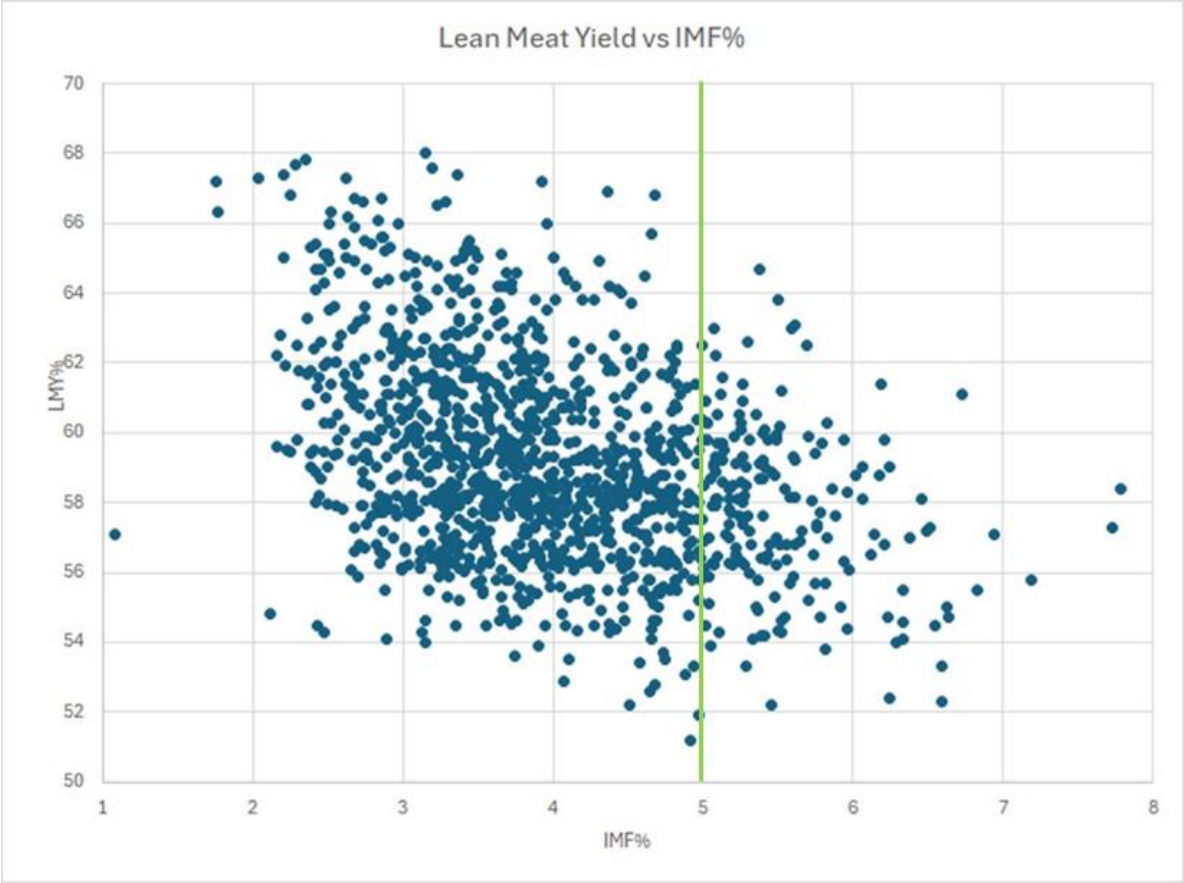
4.1.3 Online producer workshop, Teams 25th of November 2024

David Packer went through a summary of the results, plus some R&D information that helped explain the results we saw in the competition.

This was followed by a facilitated Q&A session with Mark Inglis, David Packer, Alex McGorman and the other members of the competition organising team, based on some questions that were sent in by producers prior to the meeting, as well as on the day. A summary of some of the key discussion is captured below.

- Alex McGorman explained how the induction process was done at the feedlot and some of the issues faced regarding animal health (e.g. a rainfall event that saw several lots affected by pneumonia) and also the issues around retention of eID tags. It was also highlighted that this competition tried to mimic what happens commercially at the feedlot rather than competition lambs having any special treatment.
- There was some discussion around the fact that the smaller and younger lambs potentially got bullied by larger older lambs in the same pen. The importance of entry weight was highlighted as one way of preventing this, and hence the penalty for non-compliance within the competition.
- There was discussion that shearing of the sheep could have been done on a case-by-case basis (i.e. 30mm cross breed wool up against 60-70mm merino wool didn't seem fair). Once again this was explained that this is the commercial reality that the feedlot faces when purchasing store lambs as to what value they obtain from the wool.
- Another question was around feed intake and conversion efficiency – was this measured? The competition organisers clarified that they did look at this, but as individual feed intake wasn't measured, there were too many assumptions, so it was not considered.
- There were questions about why the data took so long to get out. Competition organisers explained the logistics of ensuring the accuracy and quality of the data that producers received, especially since it was an inaugural event. Despite having individual eIDs, several lambs were missing eID tags at slaughter and several methods were used to match the order of carcases (and lot) to the hook tracking data. Where there was any doubt, individual carcases were removed from the analysis. This, along with some lamb deaths in the feedlot, was why the final results may not have had the original number of lambs processed. It was accepted that in future, it would be good to have a full set of data available to participants immediately after the award presentation and that lambs missing tags at the feedlot be re-tagged prior to processing.
- Other questions were around the weightings of the competition in relation to current grids. The winners of the lambs in the carcase competition would not be the most profitable under current grids. This indicated that many lambs within Australia that have been selected predominantly for growth rate and carcase weights may not meet the specifications for future grids based on eating quality and MSA index. This was supported by the variation in data seen in the carcase competition (Fig. 4).

Figure 4 – Range of LMY and IMF% in data from LambEx carcase competition



- There was agreement that we need more co-operation up and down the supply chain because at the moment producers are getting price signals to produce heavy lambs, not necessarily high eating quality ones.
- There were comments around mixed messaging between MLA, processors and growers regarding previous carcase competitions and industry signals that reward high average daily gain and leanness and now producers are being asked to focus on eating quality without being matched by current price signals. The explanation was that one of the hold-ups regarding value-based trading in sheep meat has previously been a lack of technology to measure intramuscular fat (needed for the calculation of an MSA eating quality index) and now some of the issues surrounding this measurement at chain speed, as well as having accurate hook tracking technology in the processing plants.
- There was some concern about increasing fat levels to improve eating quality. This led to an explanation regarding the difference between reducing external fat (and improving lean meat yield) whilst increasing the intramuscular fat to improve eating quality. The negative correlation between lean meat yield and eating quality traits was also highlighted.
- Many seedstock producers have already been selecting for eating quality ASBVs (shear force and intramuscular fat) and producers who had been selecting rams over the last few years for improved eating quality ASBVs performed well for eating quality within the competition.

4.1.4 Processor tour and producer workshop, Stawell 9th of April 2025

16 producers from 9 businesses that participated in the competition were given a tour through the TFI plant at Stawell and saw firsthand the logistics involved in the carcase measurements and the speed of the chain in the processing floor (16 carcases per minute). They were able to observe the DXA (dual energy X-ray absorptiometry) unit assessing carcase yield in operation, as well as the MEQ

probe assessing carcases for intramuscular fat. The tour also involved going through the boning room, chiller, pneumatic carton sorting system and lairage. TFI explained labour requirements and training, as well as the various brands and customer expectations for both export and domestic products.

Following the tour, participants participated in an interactive workshop off-site to hear more from Mark Inglis about customer specifications and when value-based payment systems will be a reality, as well as information on the development of the MSA model from David Packer. Peer-to-peer learning was a key feature of the day with producers sharing information about their lamb enterprises, including their breeding objectives and carcase competition performance.

Figure 5: Producers at the workshop pictured with Mark Inglis (TFI) and facilitator Elke Hocking.

Thoughts captured throughout the day (from producer round the room introductions)

- Producing lambs for the local butcher and thought they were really good. Carcase competition showed they could be better – good to get actual objective carcase data.
- Carcase competition showed that what we were targeting with our ASBVs was reflected in the carcase data (eating quality). We haven't put as much emphasis on growth rate and our lambs only achieved average growth rates in competition, so we will look at this more in future (whilst maintaining eating quality).
- Carcase competition validated our breeding objective. Flock profile that we had done previously aligned well with carcase competition results. Demonstrated that Merinos could have good eating quality. Lambs were still underweight at induction into the feedlot though.
- Our sheep are early maturing and can get carcase weights up to 28kg, but this didn't show up in the competition results. Our entry weights were not up to specification and had some animal health issues. Taking time to build accuracy in ASBVs and getting numbers up.
- Breeding tougher animals with high growth rates (no ASBVs). High growth rates were reflected in the competition.
- Have been focussing on carcase traits in the Merino and are blown away by what the modern Merino can do. Carcase results reflected our breeding objective and ASBVs we've targeted.

- Haven't put much emphasis on eating quality in selection but have targeted growth rate and fertility. The world is changing, and we have to start looking at eating quality. One bad experience from a consumer can last a long time.
- Commercial enterprise targeting maternal traits and turning off store lambs, so was good to see how they finish. Haven't been targeting carcase traits.
- Identify your objective and measure how you perform relative to that. Use of eID has helped to evaluate traits that can be measured on-farm. Carcase competition gave us results we couldn't measure on-farm. Currently only getting paid on weight; how do we transition into getting paid for quality?

Further Q&A / Expectations for the day

- Better feedback on carcases from small operators (processors).
- Eating quality traits vs early growth and carcase weight.
- When are we likely to get market signals for eating quality (premiums and/or discounts)? Only paid on carcase weight currently.
- Here to learn.
- Where is the industry headed? What does the customer want?
- Will lamb get to $11/kg?
- What are the target carcase weights (or eating quality specifications) for future grids?
- Opportunity for branded lamb products – what's the cap on price? Will the customer be willing to pay a premium for branded lamb (based on eating quality).
- Explanation of grids.
- Industry co-operation vs competitors. The lamb industry is a small industry that needs to be collaborating.
- Future of the LambEx carcase competition.

Individual producer presentations

Four producers were given the opportunity to speak in more depth on their business and carcase competition results. They were given the following brief:

- introduce your business and enterprises (whole farm business and where the lamb enterprise fits).
- number of breeding ewes, genetics source, brief overview of animal management calendar (joining, lambing time, animal health, target markets, etc).
- vision for your business / breeding / business objective.
- present a summary of your carcase data (MSA index, growth rates, etc).
- were the results consistent with what you thought they'd be? Any surprises?
- what did you learn?
- did you do any other analysis of your data (i.e. economics or overlaying of genetics data from your ram team/RamSelect, etc)?
- have you made (or will you make) any changes, seek any more carcase feedback?
- what excites you about the future of the lamb industry?
- what concerns you about the future of the lamb industry?

Individual presentations in the workshop allowed peer-to-peer learning, with one written up as a case study (see Appendix). The case study business demonstrated the genetic progress they had made in eating quality traits linked to their participation in the pilot workshop of *Meat the Market – lamb compliance* in 2019.

4.1.5 Feedback for 2026 LambEx carcase showcase committee

Competition evaluation: what worked well?

- Getting good feedback.
- Whole competition was well run.
- Showcasing MSA model (grading system).
- The logistics of getting lambs to the feedlot was handled well by the committee (Trans-Australia livestock sponsorship of freight free of charge from designated delivery depots).
- The feedlot open day was good.
- Industry does care where we are going.
- Giving producers a clue on what the future of the industry looks like.
- No carbon measurement parameters as part of the competition.
- Opportunity to see how lambs performed under feedlot conditions.

Competition evaluation: what could have been better?

- Feedback to come out sooner.
- Have two consignments from feedlot to processor.
    - 1st draft at 50 days on feed.
    - 2nd draft at 70 days on feed.
- Allocate a whole session at LambEx to the carcase competition.
    - Have information and results session for delegates at a breakfast session.
- Make the competition bigger (greater number of entries).
- Current commercial weighting vs what the future looks like.
- Challenge to deliver to specifications that producers weren't set up for:
    - feedlot entry weights and timing of competition not lining up with normal turnoff.
    - trying to meet a feedlot grid with a final carcase weight in mind was challenging (many failed to meet feedlot entry weights and lost points for this).
- Other categories that could have been measured:
    - skin values?? Varies dramatically.
    - Feed conversion ratio (competition organisers did look at this, but there were too many assumptions required).

Thoughts on competition vs showcase

- Confused as to what a showcase actually entails.
- Could producers put lambs through the processor anytime (or set months) to demonstrate best practice genetics/management/nutrition and impact on carcase results?
    - Minimum of 100 or preferably 200 if processed in separate 'lots' at different times (rather than all competition lambs processed over a couple of days).
- Competition.
    - Producers liked the competition as you have to perform. Good test of how good producers' lambs are compared to how good they think they are.
- Ease of logistics regarding obtaining data from processor needs to be considered.
    - To obtain accurate data – needs oversight at the processing facility.

- Grass vs Grain or both?
    - Grassfed consignment to a particular property (similar to consignment to feedlot) to manage timing of competition (finishing phase and date of processing) Larnder park beef example: https://lardnerpark.com.au/steer-trial/
    - Need a point in time for logistics at processor.
    - Grain gives consistency regardless of the season (unless use irrigation for grass-fed).
    - Timing of entry weight or sale is different for different producers (if competition relies on delivery of lambs as precise time-point).

5. Conclusion

5.1 Key findings

This project was a continuation of the successful model of producer engagement activities conducted in the Advanced livestock measurement technologies (ALTMTech) for globally competitive Australian meat project (Hocking, 2022).

This report stated that "the critical success factor in achieving the uptake of objective carcase feedback by producers has been the engagement of supply chains as delivery partners. By working within supply chains, producers have been able to develop trusted and productive relationships with them as the abattoirs progress on the pathway to deploy new carcase measurement technologies, begin to provide carcase feedback to their suppliers, including lean meat yield and intramuscular fat, and explore value-based payment models."

Currently, lamb producers are paid predominantly on carcase weight. However, with new technologies for objective carcase measurement of lean meat yield and eating quality currently being developed, it is hoped that future value-based trading systems can be implemented by processors, which will reflect the true value of carcases to the end consumer.

Throughout the workshop and online session, producers expressed their frustration at still only being paid on carcase weight. The carcase competition enabled producers to receive data they couldn't normally receive from commercial abattoirs, allowing them to think about the practical on-farm changes that are needed to prepare for what future grids may look like.

Learnt from face-to-face workshop (most interesting thing you saw)

- Never been in a processing plant before – was good to see.
- That if lambs lose weight before processing, this impacts on IMF%.
- Interesting to see all the different business models from producers in the room.
- Collaboration of the industry to drive us forward is what's needed.
- Sharing of knowledge amongst producers was valuable.
- Woolworths putting cuts into plastic crates to transfer to further processing.
- Need to remove poor performers (lamb) from the industry.
- How labour-intensive it is to run a processing facility – was an eye opener.
- That my breeding objective is heading in the right direction.
- Need time to digest the information from today to distil out what's important to implement and what's commercially viable.

What will you change (keep doing or stop doing)

- Enter lambs into competition next time.
- Utilise RamSelect to benchmark ram team.
- Use teasers before joining.
- Keep doing the same – heading in the right direction.
- Won't keep increasing IMF% if future payment is not based on quality (in major processing plants).

Evaluation from the workshop

- Content for the workshop – 8.7/10 (18 responses)
- Value to your business – 8.2/10 (18 responses)

5.2 Benefits to industry

This project provided an opportunity to document the LambEx carcase competition methodology so that it can be used by future industry carcase competition organising committees. It provides information on what was done and why, as well as learnings and feedback from producers.

This model of data collection, followed by producer engagement, can be used as a reference for future lamb carcase competitions or producer groups wanting to perform lamb trials where carcase feedback is sought (i.e. Producer demonstration sites with the aim of preparing producers for future lamb MSA carcase feedback).

Support provided to the 26 lamb businesses involved in the competition will enable these producers to more effectively evaluate their current genetics about fleece, growth rate and carcase performance, and modify their breeding objective accordingly to meet future customer demands and profitability of their enterprises.

Individual presentations in the workshop allowed peer-to-peer learning, with one written up as a case study (see Appendix). The case study business demonstrated the genetic progress they had made in eating quality traits linked to their participation in the pilot workshop of *Meat the Market – lamb compliance* in 2019.

6. Future research and recommendations

Running a carcase competition of this size was ambitious, resulting in various logistical challenges that had to be overcome by the organising committee. Despite the processor having carcase hook tracking technology, several staff were needed to ensure the eID from lambs matched the hook RFID. Additionally, the speed of the chain required two MEQ staff to obtain measurements of IMF%.

Future R&D should continue to work with processors to overcome the issues currently limiting the realisation of the full potential of carcase hook tracking systems as well as the development of automated objective carcase measurement technologies that can operate at commercial processing chain speeds. These are the main barriers preventing processors from delivering enhanced individual carcase data, including an MSA Index, to producers.

In the interim, industry should support carcase competitions and producer trials (i.e. Producer demonstration sites) to work with individual processors and the MSA team to obtain enhanced carcase data, including a lamb MSA index, so that proactive producers can start making on-farm decisions to improve eating quality as well as developing relationships with processors. This report can hopefully be used as a useful resource for future carcase competition and trial organisers.

7. References

Hancock, B.L., Hocking, E., Miller, S. (2021) Lamb lean meat yield and eating quality workshop, a supported learning program. *Proceedings of the 33rd Biennial Conference of the Australian Association of Animal Sciences* **33**.

Hocking, E. (2022). Adoption through Supply Chain Engagement. An *Advanced livestock measurement technologies for globally competitive Australian meat* project. Technical report: Sub-program 5.3 KPI 3.36 October 2022.

8. Appendix

8.1 Case Study: GW and CL Clothier and Sons

Carcase results match ram breeding objectives

"Greenvale" GW and CL Clothier and Sons, Woolumbool, SA

Author: Elke Hocking Consulting

SNAPSHOT

Name	Graham and Karen and sons Sam and Ollie Clothier
Location	Woolumbool, Southeast SA
Av rainfall	525ml
Enterprise	800 Merino ewes, 2200 First cross (White Suffolk x Merino) ewes, 10,000 laying hens, trade cattle
Farm area	800 hectares
Soil type	Sandy through to sandy loam and terra rossa soils
Pasture base	Sub-clover, annual Ryegrass, chicory and lucerne.

Business goal (philosophy)

"To sustainably produce food and fibre, encompassing a triple bottom line."

Background and yearly management program

The Clothier family farm 800 hectares at Woolumbool in the Southeast of South Australia. With 800 Merino and 2200 first cross (White Suffolk x Merino) breeding ewes, they produce their own replacement first cross ewes as well as second cross lambs (White Suffolk x Merino joined to White Suffolk) predominantly for the Woolworths and Coles domestic markets. Previously, their target carcase weight was 21-22kg. However, with processors increasing grid prices for heavier weight lambs in recent years, they now aim to produce a 24-25kg carcase weight lamb.

Since completing Australian Wool Innovation's *Lifetime Ewe Management* and a Meat and Livestock Australia Profitable Grazing Systems *Lifting Lamb Survival* workshop, they have had a strong focus on weaning rate in their prime lamb enterprise and consistently wean between 130-145% lambs to ewes joined (including ewe lambs). Mature age ewes are joined in the first week of January for 5 weeks after flushing ewes with beans. Ewe lambs are joined in February for 5 weeks and are all vaccinated for campylobacter at both entry and exit of rams. Grain feeding commences at joining and continues through pregnancy, depending on seasonal conditions and ewe requirements.

Ewes are put out into paddocks in May (depending on feed availability) and split into single and twin mobs for lambing in June.

Prior to weaning in September, lambs are imprint fed with their mothers to ensure they can easily adapt to grain feeding during the finishing phase. Crutching also takes place in September, with shearing and culling of ewes in October. Ewes are culled predominantly on toes, teeth and udders.

The first draft of lambs is normally finished off on grass and sold in October. With a shorter growing season and the prevalence of grass seeds in their area, lambs are put into the feedlot on pellets in November. Prior to the feed drying off, grain feeding of the ewe lambs also commences. Most of the lambs are sold out in December, depending on weights and market conditions, with any remaining sold no later than April.

Breeding objectives – Merino enterprise

For their Merino enterprise, breeding focuses on meat traits (eye muscle and fat) to create a ewe that is robust in all conditions while raising multiple lambs, with bright white wool under 22 microns, whilst also targeting mid-range adult weights. The aim is to have a standard adult ewe reference weight (at condition score 3) between 60 to 65kg.

Figure 1: Australian Sheep Breeding Values (ASBV) Merino percentile table showing Clothier's target ASBV's for purchases of Merino rams.

Report: Percentile Bands
Analysis: MERINO
Analysis date: 07/08/2024
Drop Year: 2023

Band	PWT	YWT	ACFW	YCFW	YFD	YSS	MWWT	YEMD	YFAT	ERA	EBWR	POLL	AWT	PWEC
1	12.16	14.95	34.35	39.22	-3.56	8.28	2.02	3.58	2.53	0.1	-1.38		13.18	-69.74
5	10.33	12.73	28.72	33.11	-2.75	6.14	1.43	2.92	1.91	0.08	-1.16		11.19	-58.09
10	9.35	11.6	25.82	29.93	-2.33	4.99	1.11	2.52	1.55	0.07	-1.03		10.09	-50.92
20	8.18	10.27	21.88	26.12	-1.85	3.58	0.73	2.01	1.14	0.05	-0.85		8.75	-41.49
30	7.31	9.3	19.17	23.36	-1.51	2.58	0.46	1.64	0.83	0.05	-0.7		7.79	-34.18
40	6.56	8.44	16.77	20.96	-1.24	1.75	0.23	1.3	0.55	0.04	-0.56		6.93	-27.25
50	5.86	7.63	14.49	18.69	-0.99	0.99	0.01	0.98	0.29	0.03	-0.41		6.11	-20.24
60	5.14	6.8	12.17	16.46	-0.72	0.23	-0.21	0.65	0.05	0.02	-0.26		5.28	-12.92
70	4.35	5.88	9.68	14	-0.45	-0.57	-0.44	0.31	-0.2	0.02	-0.08		4.38	-4.8
80	3.34	4.74	6.81	11.11	-0.11	-1.52	-0.73	-0.08	-0.46	0.01	0.13		3.24	5.52
90	1.74	2.99	3	7.1	0.42	-2.86	-1.13	-0.6	-0.78	-0.01	0.43		1.55	20.73

**Note: red circles indicate target ASBVs. Where circles are not around a number, this indicates their target is in between the two values.*

Breeding objectives – Prime lamb enterprise

Within their prime lamb enterprise, they focus on breeding a ewe that is highly fecund, targeting meat traits (muscle and fat), high worm resistance, mid-range birth weights, high eating quality traits and wool that is below 26 microns (with the aim that wool income will still cover shearing costs). The main driver of their selection process is through ram purchases, with White Suffolk rams being purchased from *Woolumbool,* and Merino rams purchased from *Triggervale.*

Figure 2: Australian Sheep Breeding Values (ASBV) Terminal percentile table showing Clothier's target ASBV's for purchases of White Suffolk rams.

Report: Percentile Bands
Analysis: TERMINAL
Analysis date: 15/08/2024
Drop Year: 2023

Band	BWT	PWT	AWT	PEMD	PFAT	PWEC	NLW	DRESS	LMY	IMF	SHEARF5	LEQ
1	-0.48	20.5	24.03	4.37	1.43	-72.07	0.16	3.63	5.22	0.49	-2.87	164.14
5	-0.27	18.84	22.13	3.68	0.85	-61.65	0.11	3.26	4.55	0.17	-1.29	157.43
10	-0.05	17.98	21.17	3.33	0.57	-55.6	0.1	3.07	4.22	0.03	-0.57	153.47
20	0.11	16.98	20.02	2.92	0.26	-47.28	0.08	2.83	3.84	-0.11	0.3	148.33
30	0.19	16.24	19.2	2.61	0.06	-40.33	0.06	2.64	3.56	-0.22	0.93	144.32
40	0.25	15.55	18.46	2.34	-0.11	-33.91	0.05	2.47	3.33	-0.3	1.47	140.68
50	0.3	14.83	17.75	2.08	-0.26	-27.22	0.04	2.3	3.1	-0.39	1.97	136.99
60	0.35	14.03	16.98	1.82	-0.4	-20.29	0.03	2.14	2.86	-0.47	2.5	133.42
70	0.39	12.99	16.02	1.54	-0.55	-12.63	0.02	1.94	2.57	-0.56	3.09	129.85
80	0.45	11.62	14.59	1.22	-0.72	-3.91	0	1.7	2.22	-0.67	3.82	125.83
90	0.52	9.89	12.18	0.77	-0.95	7.14	-0.02	1.35	1.64	-0.82	4.92	120.7

**Note: red circles indicate target ASBVs. Where circles are not around a number, this indicates their target is in between the two values.*

Participation in "Meat the Market – lamb compliance" pilot workshop

In 2019, Graham and Sam participated in Meat and Livestock Australia's Profitable Grazing Systems (PGS) pilot workshop *Meat the Market – lamb compliance*. This workshop was delivered over three sessions, with a mix of theory, on-line and hands-on learning within the JBS Bordertown processing plant and on-farm. With an aim of assisting producers to improve lamb carcase compliance and eating quality, the main learning outcomes were for participants to:

- Understand Lean Meat Yield, Eating Quality and Objective Carcase Measurement terminologies.
- Understand that processor grids form the basis for customer specifications.
- Interpret carcase feedback to develop practical solutions to increase compliance, through genetics, nutrition and management changes on-farm.

As a result of attending the workshop, producers come out of the program better prepared for what future processor grids might look like with pricing based around carcase traits such as lean meat yield and eating quality, as well as a starting point to develop practical solutions to feedback so they can improve lamb compliance, profitability, and eating quality. In the absence of measurement for intramuscular fat and eating quality at the time of the workshop, one of the exercises was to benchmark your ram team in RamSelect (https://ramselect.com.au/) to determine where your current performance for eating quality was likely to be, based on sheep genetics ASBV's.

The following graphs and tables show the progress that they have made in their ram team since benchmarking their ram team in RamSelect in the 2019 workshop.

Figure 3: Genetic trends (2018 to 2025) for Clothier's White Suffolk ram team (RamSelect)

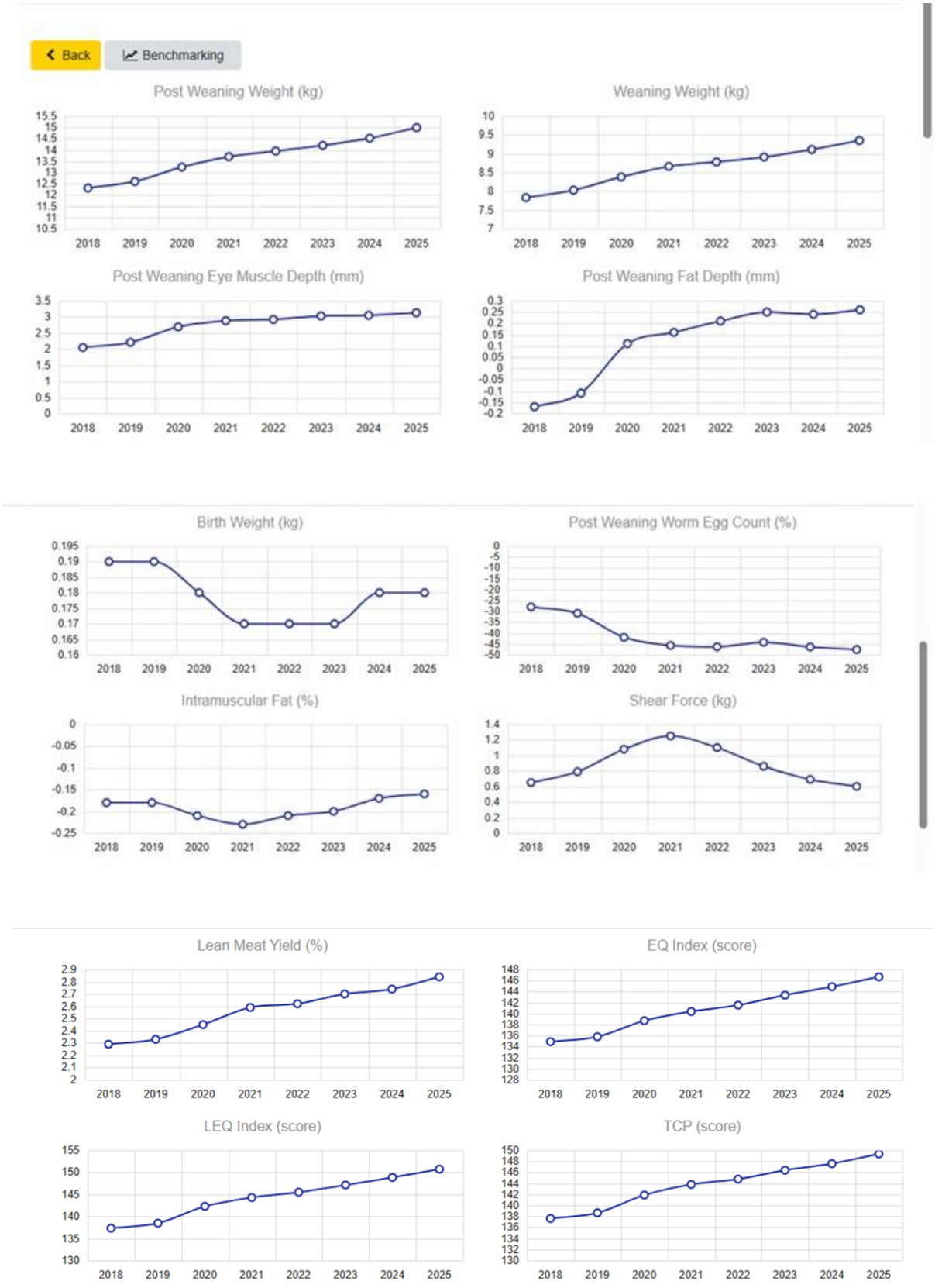
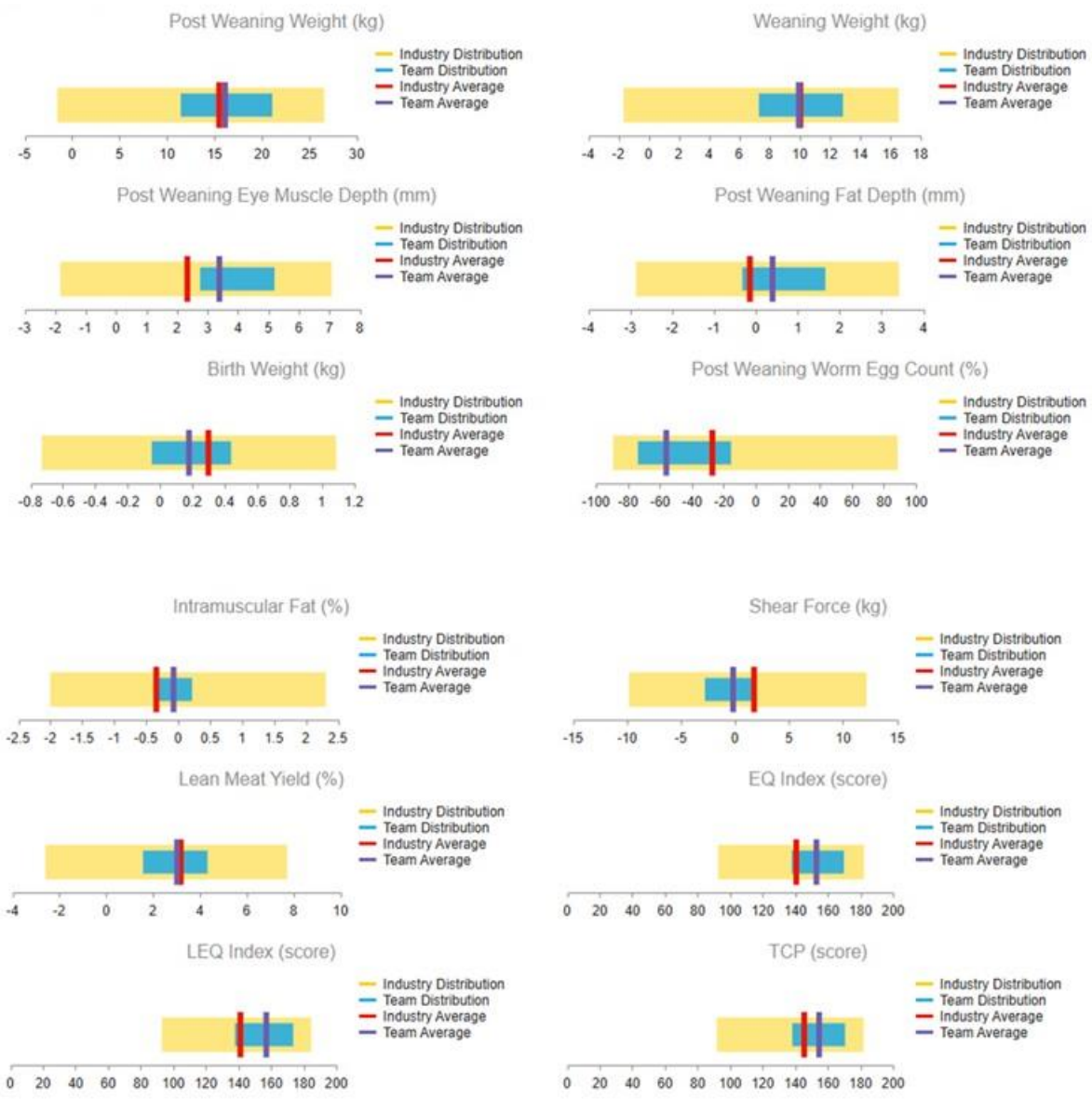


Figure 4: 2025 Average ASBV's for Clothiers White Suffolk ram team (RamSelect).
Note that for shear force, a more negative value indicates more tender meat, and a higher intramuscular fat percentage is correlated with better eating quality (correlated with better juiciness, flavour and overall liking).



Their focus on eating quality traits is evident, with intramuscular fat % (IMF), shear force (SF), and eating quality index all being more favourable than the industry averages for these traits. Lean meat yield and post weaning fat ASBV's are about industry average for their current ram team.

LambEx Feedlot Carcase Competition participation

At the end of 2023, Clothiers entered a lamb team into the AMPC LambEx Feedlot Carcase Competition. This competition was a collaborative effort between key partners AMPC, Thomas Foods International (TFI), Thornby Feedlot and Meat & Livestock Australia to deliver a Meat Standards Australia (MSA) cuts-based graded commercial focused lamb feedlot carcase competition, the first of its type of lamb across Australia.

The terms and conditions of the LambEx Feedlot Carcase Competition were as follows:

- Enter 50 vendor bred 2023 born woolly lambs.
- Delivery early December 2023 to Thornby Feedlot – Sanderston, South Australia.
- Entry weight between 35-42kgs curfew live-weight.
- Lambs purchased by Thornby on delivery at the current per kilogram market rate.
- Lambs to be feedlot for 70 days & processed at Thomas Foods International Stawell (Grid 22-30kgs DW).
- Carcases to be assessed under Meat Standards Australia (MSA) guidelines.

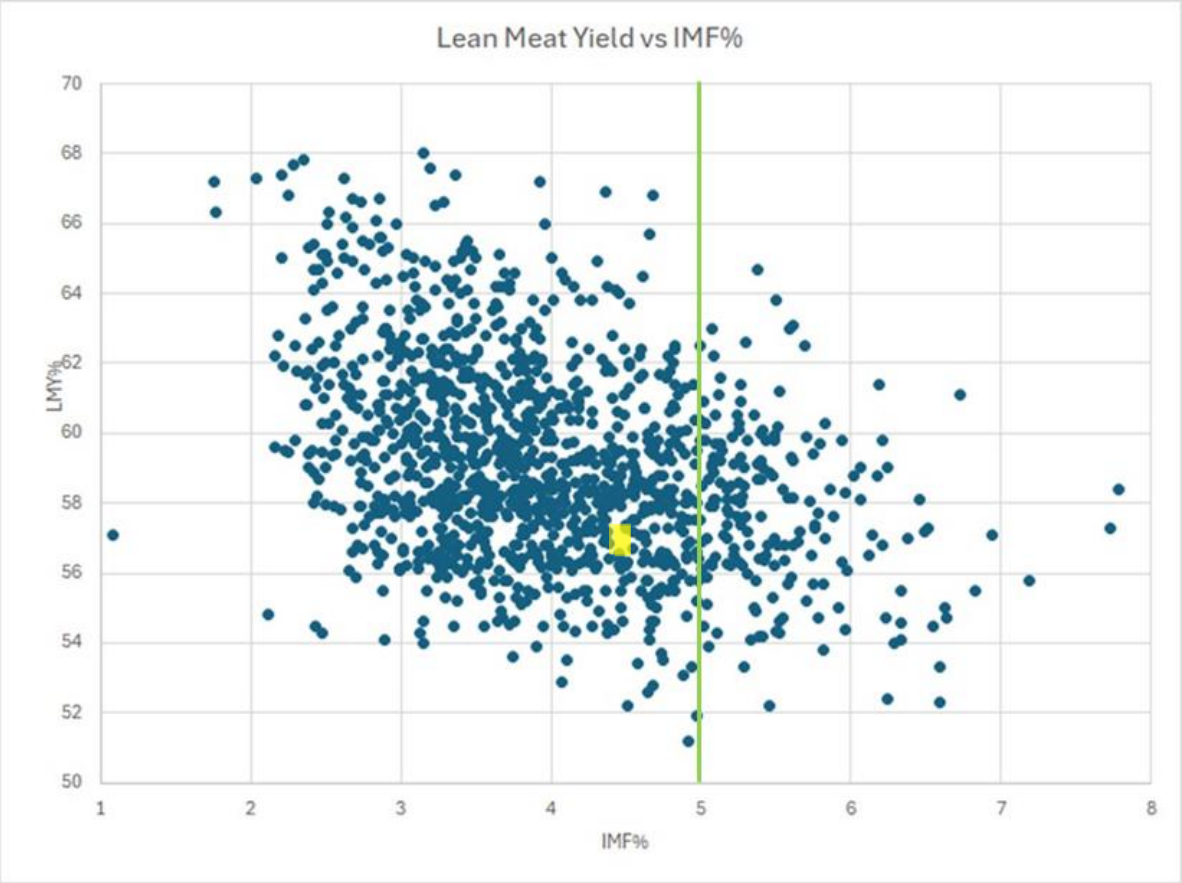
A total of 1500 lambs (30 lots), representing 16 different breeds, from 26 producers across Australia (NSW, Vic, SA and WA) were delivered to Thornby Feedlot, Sanderston, SA over 3 days between the 1st and 3rd of December 2023. Lambs were processed across three days from the 13th to the 15th of February 2024 at TFI Stawell processing facility and carcase data collected by the organising committee and MEQ staff.

Following the competition, producer engagement workshops were held consisting of one online workshop as well as a plant tour and face-to-face workshop at TFI Stawell. The aim of these activities was to help producers understand their results and identify on-farm practice changes that will improve future carcase outcomes and productivity. Since peer-to-peer learning has shown to be an excellent model for producer adoption, several producers were asked to give a presentation on how the data has been used within their business since the competition. Sam Clothier was one of the producers asked to share his data as he was able to share the progress he has made through genetic selection to improve the eating quality of his lambs over time (Fig. 1-4).

Table 1 – Clothier carcase competition results

Trait	Result	Placing in competition (out of 30 lots)
Wool traits	24.7 micron $3.20 price / kg $3.98 / head value	
Feedlot non-compliance	56%	
Average daily gain (g/head/day)	320 g / head /day	10th place
Liveweight feedlot exit (kg)	55.5 kg	
Average Hot standard carcase weight (kg)	28.2 kg	
Fat Score (mm)	19.8 mm	
Dressing Percentage	51%	
MEQ (Intramuscular fat %)	4.5% (Range 3.0-6.6%)	
Average MSA index	60.34	2nd place
Highest individual carcase MSA index	62.98	4th place
Lean meat yield	56.8 %	
Overall Feedlot	64 points	19th place
Overall Carcase performance	80 points	12th place
Overall score (Feedlot and Carcase performance)	75 points	9th Place

Figure 5 – Range of LMY and IMF% in data from LambEx carcase competition.
Note: greater than 5% intramuscular fat is considered to be above average eating quality. The yellow dot shows the average LMY% and IMF% for Clothier's lambs in the carcase competition.



The Clothiers had the second highest average MSA Index within the carcase competition and also had the 4th highest individual MSA Index in the competition, demonstrating their focus on eating quality is being reflected in their carcase traits achieved.

Since participating in the carcase competition and evaluating their carcase results in relation to their ram team, they were pleased to see that the traits they had been selecting for were all heading in the right direction, however, also realised that their average daily growth rates were not as good as they could be, so will now be targeting rams that are in the top 20% for growth trait Australian Sheep Breeding Values (ASBV's).

Key messages
- Benchmarking your ram team in RamSelect will give you an indication of your current performance for different traits against the industry average.
- To prepare for future grids based on eating quality, selection for eating quality ASBV's (Shear force and Intramuscular fat) will improve the lamb MSA Index and eating quality of your lambs.

Lessons learned
- That selection using ASBVs works. Trends in the ram team ASBVs were reflected in the carcase data.
- That not enough focus has been placed on growth rates in the Clothiers breeding objective. This will be addressed by selecting rams in the top 20% for growth in future ram purchases.