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For the latest in red meat R&D

Naracoorte, South Australia

MLA Welcome and market update

Dr. Michael Laurence

Meat & Livestock Australia

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Overview

1. Market update
2. How to get involved with MLA RD&A
3. Updates in Animal Wellbeing

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Overview

1. **Market update**
2. How to get involved with MLA RD&A
3. MLA role in live export transition

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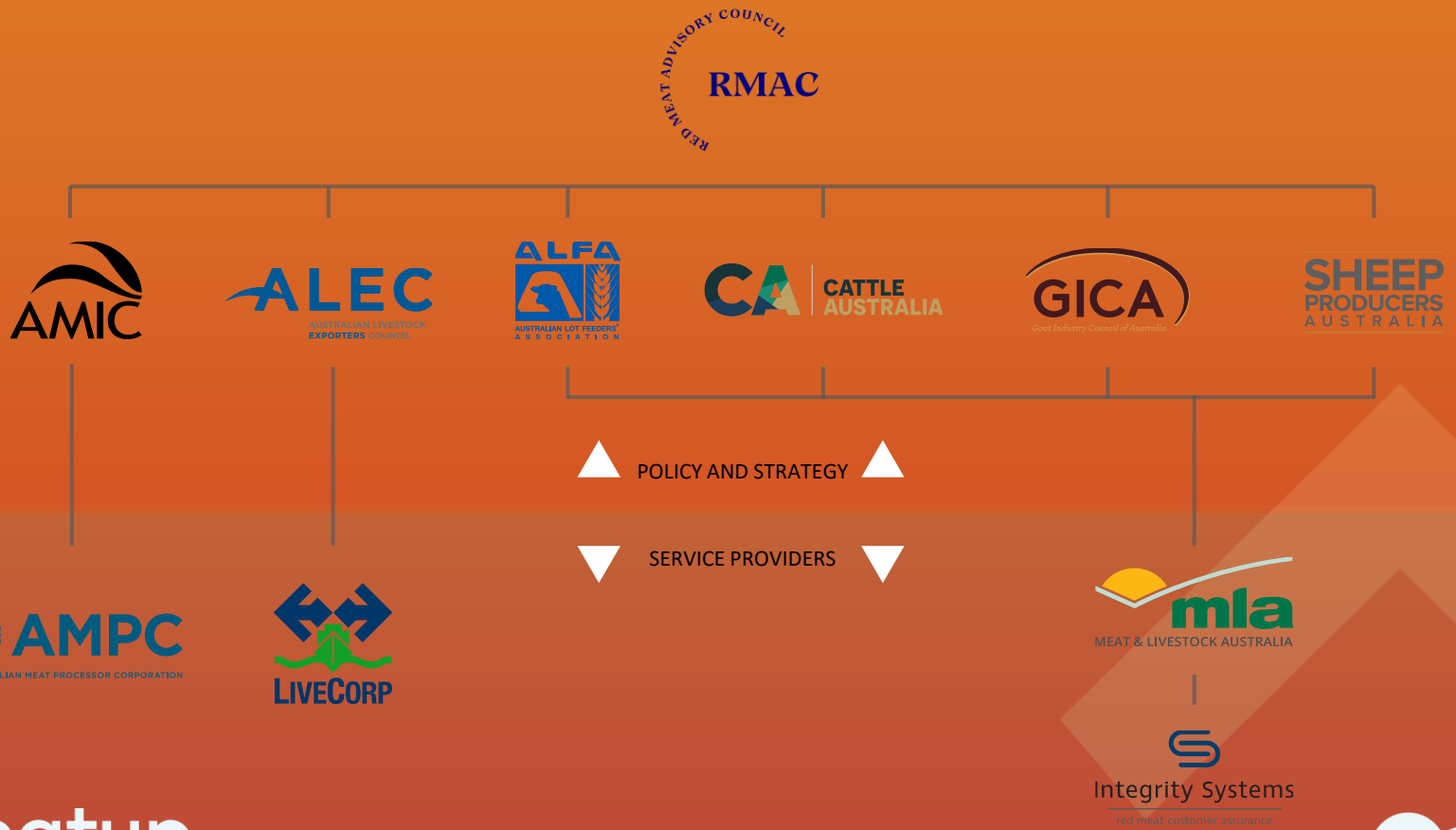

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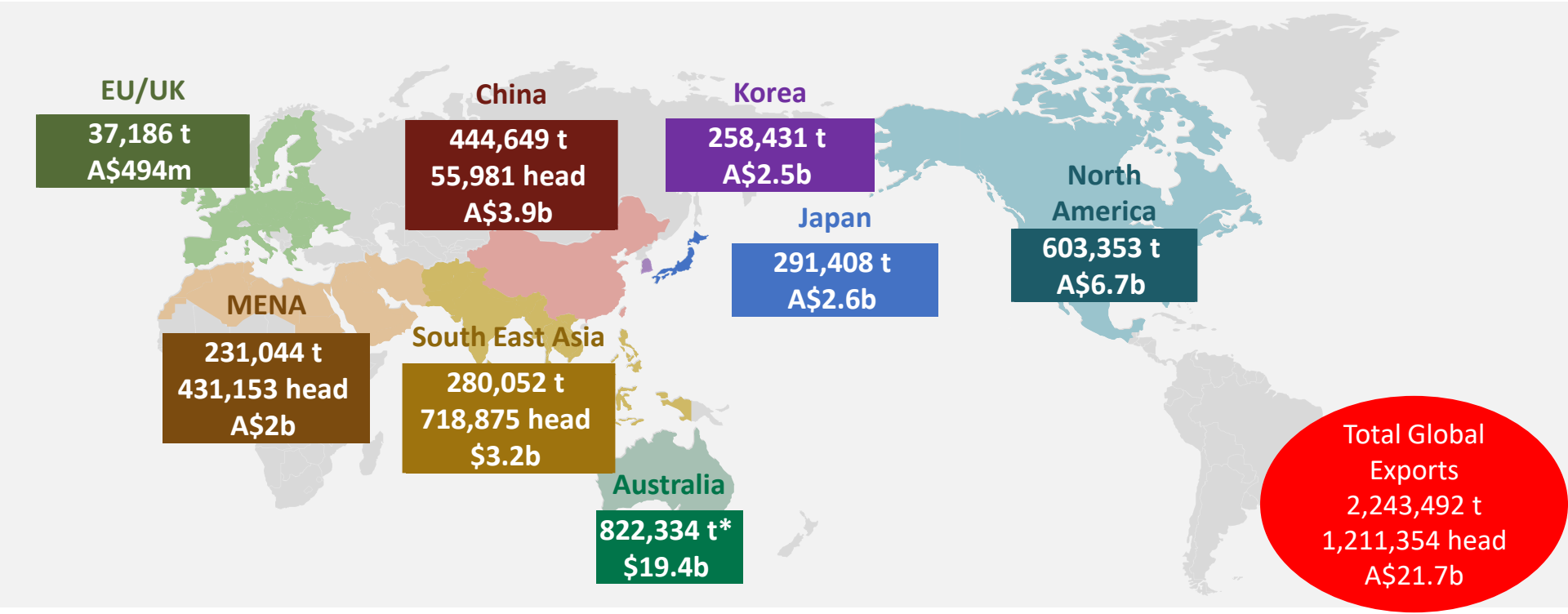
What MLA can and can't do

- ☑ Provide research, development, adoption and marketing services for industry.
- ☑ Fund and oversee NVDs, LPA, NLIS (through Integrity Systems Company).
- ☑ Provide **research** that can support the development of policy positions.
- ☑ Collaborate widely, and with partner RDCs – AMPC and LiveCorp.
- ☑ Provide detailed and comprehensive market information to industry.
- ☑ Provide support to PICs with coordinating stakeholder engagement initiatives.

- ☒ Become involved in policy or agri-political issues.
- ☒ Take direction from state farming organisations.
- ☒ Set industry policy or policy priorities or write policy submissions.
- ☒ Advocate or lobby government representatives.
- ☒ Influence processing capacity or labour supply issues.
- ☒ Forecast saleyard and retail prices.

Australia exports red meat and livestock to over 100 countries



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Source: ABS, DAFF, TDM, MLA. CY 2024

** Australian volumes in carcase weight equivalent and retail prices, export volumes in shipped weight terms and wholesale prices*

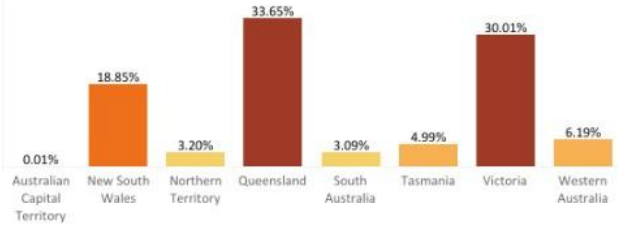
Cattle industry overview

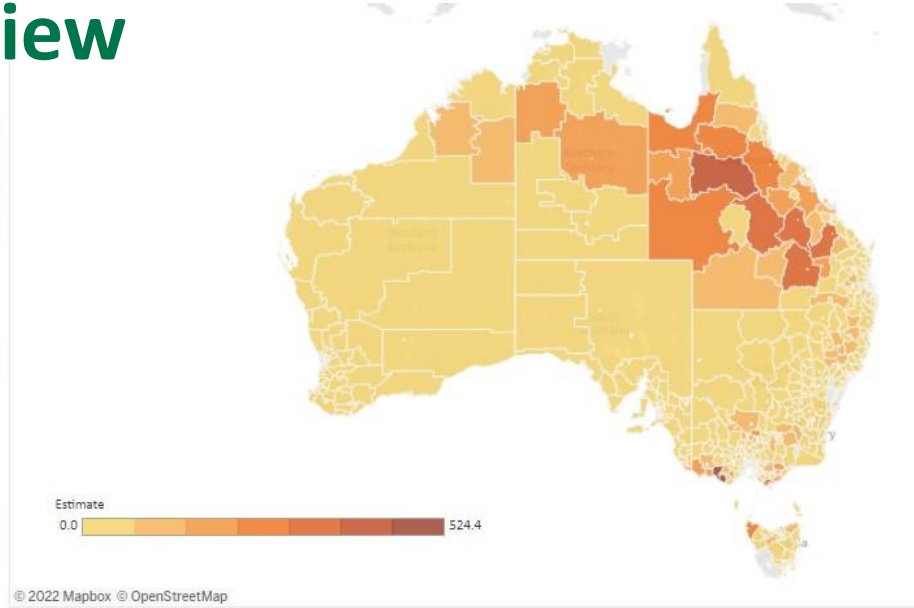
Cattle and calves, Gross value ($m)

National

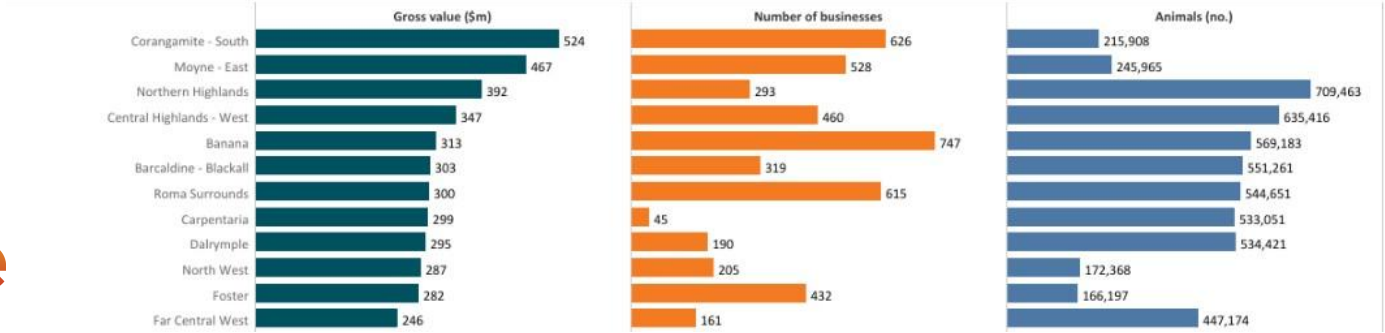
18,153 $m

States and territories





Top SA2 regions for Cattle and calves



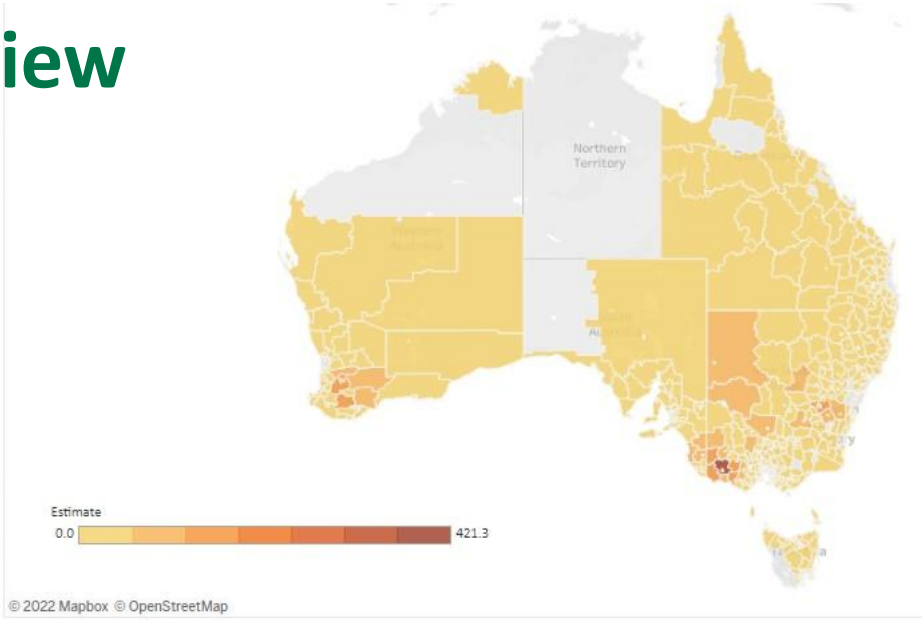
Sheep industry overview

Sheep and lambs, Gross value ($m)

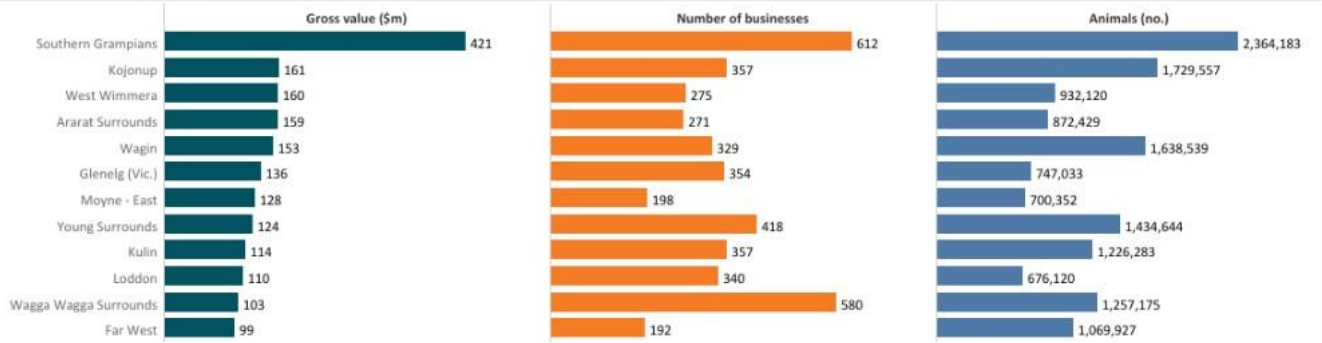
National

6,977 $m

States and territories



Top SA2 regions for Sheep and lambs



Big opportunities ahead in trade agreements

Australia-UK FTA

	Beef	Sheep/ goat
Pre-FTA	3.7kt	13.3kt
Year 1	35kt	25kt
Year 10	110kt	75kt

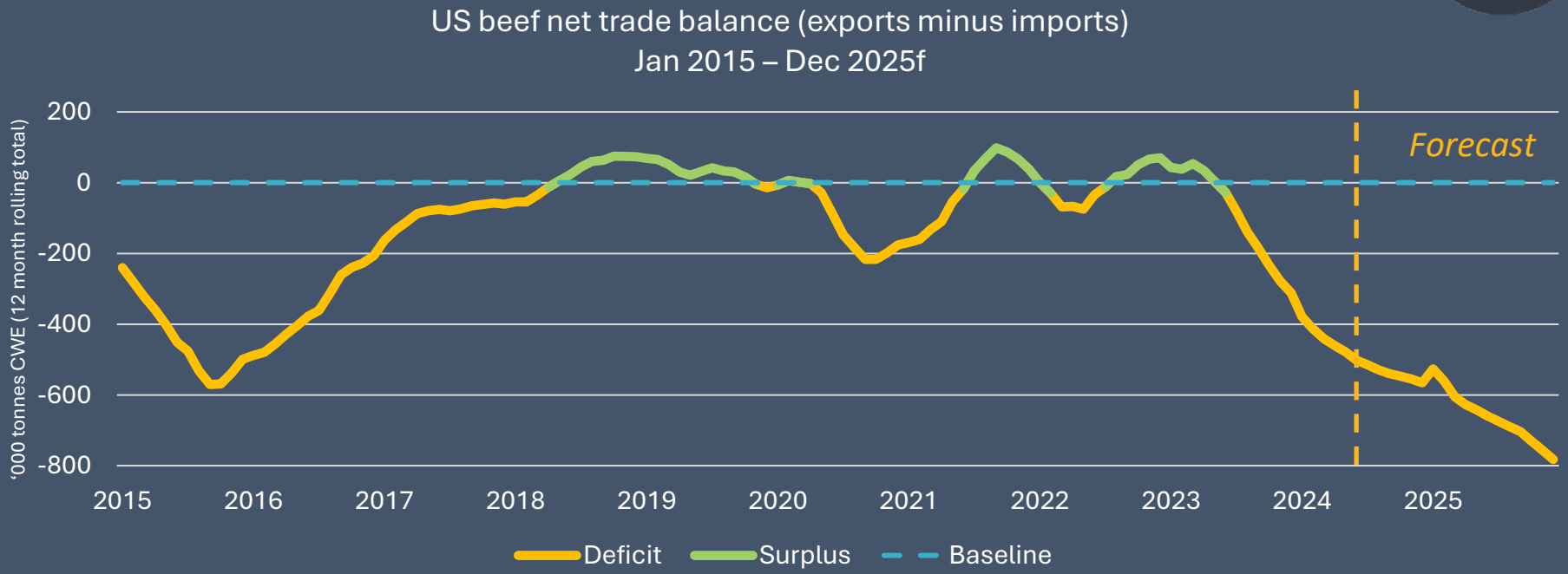
Australia-India ECTA

- 30% tariff on sheep meat eliminated
- Treaty-level interim outcome with more comprehensive FTA discussions continuing

Australia-UAE CEPA

- Negotiations concluded - likely to enter into force mid-2025
- 5% tariff on frozen beef and sheepmeat eliminated (chilled tariffs already 0%)

Big opportunities from US cattle herd destock



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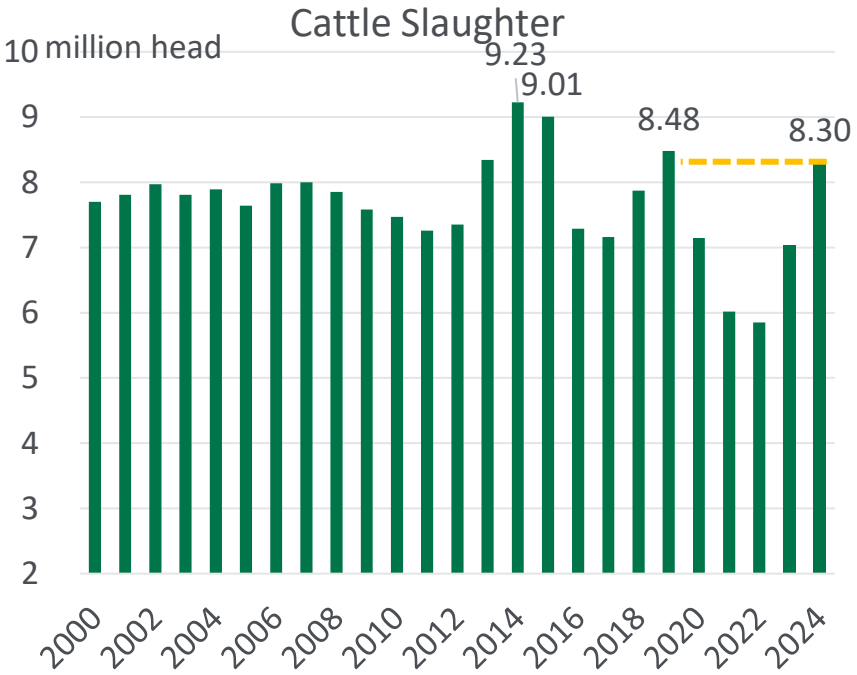
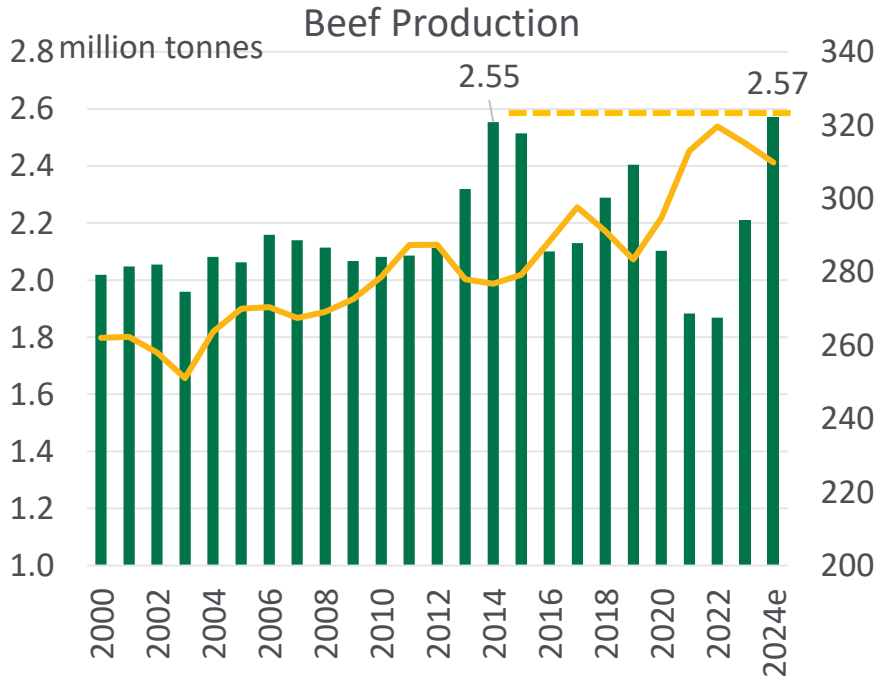
MLA Updates

2024 in review - one of the biggest years for Australian red meat.





Source: ABS and MLA estimate

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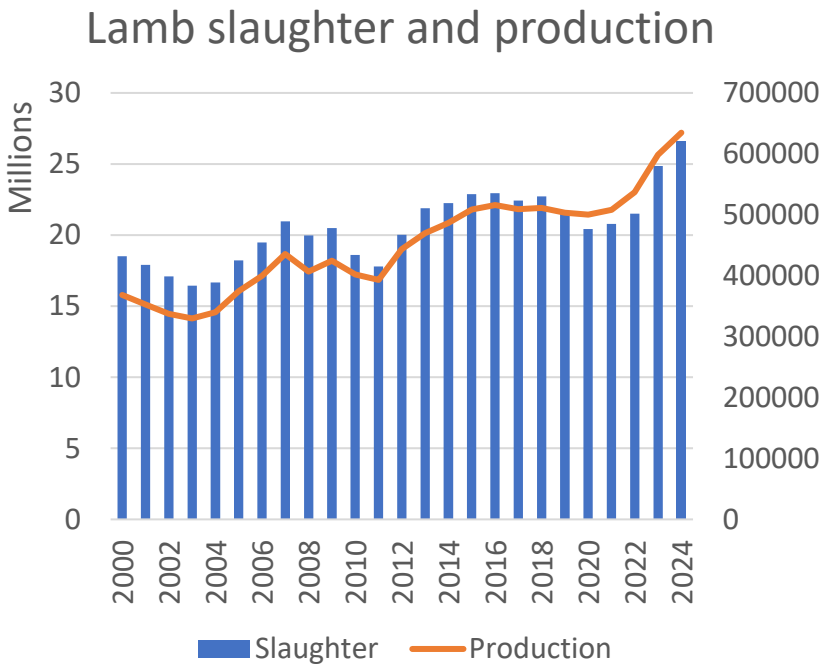
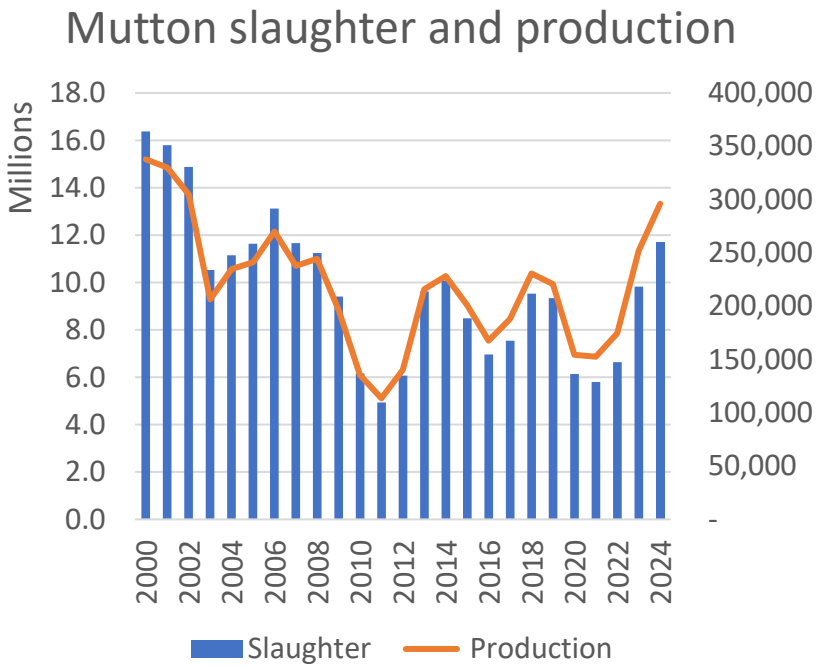
2024 in review - one of the biggest years for Australian red meat.





Source: ABS and MLA estimate

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Value Based Marketing

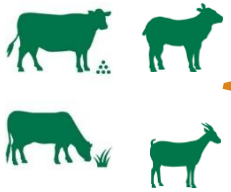
Genetics

- Livestock bred with target market destination
- Genetic potential travels with animal
- Productivity driven sustainability

Production

- Livestock valued on yield & quality potential
- Optimising production, reducing CoP
- Credentials flow with animal

Finishing



- Efficiency
- Targeted compliance
  - Carcase quantity
  - Carcase quality
  - Brand Specs

Processing

- Decisions informed through data and insights
- Brand specs reflect customer needs
- Marketing connects credentials with consumer expectations

Consumers

Seamless transfer of information back to breeder and to each owner

Information flow forward to support value of livestock

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Overview

1. Market update
2. **How to get involved with MLA RD&A**
3. Animal Wellbeing Update

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MLA Producer Consultation Program

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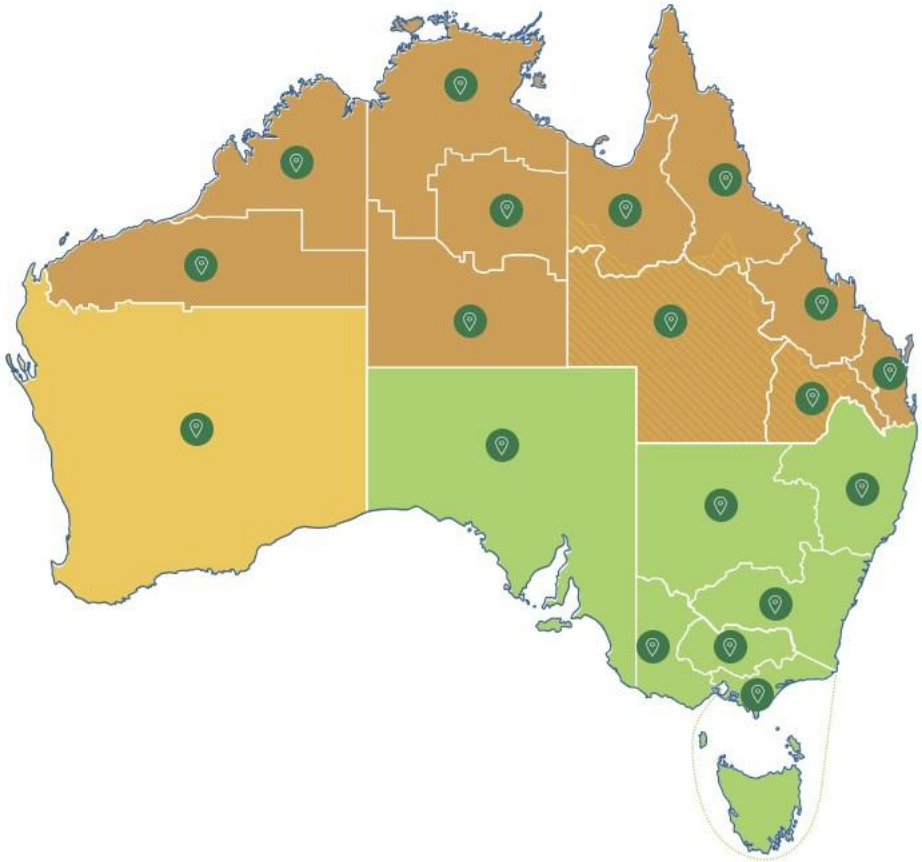
The partners involved in the producer network

THE UNIVERSITY OF SYDNEY

THE UNIVERSITY of ADELAIDE

Australian National University

Charles Sturt University



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NABRC North Australia Beef Research Council
WALRC Western Australian Livestock Research Council
SALRC Southern Australia Livestock Research Council including Queensland Sheep

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South Australia

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Secretary:
Meridian Agriculture
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info@salrc.com.au

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The Adoption Challenge

- Approx. 100,000 red meat businesses* (20,200 producers in Nth Aus).
- 28 million cattle (57% of herd in Nth Aus).
- 78.8million sheep
- 1.2million goats slaughtered in 2021

- Ambition to be Carbon Neutral by 2030
- In 2021 30% of all beef producers are using regular pain relief
- Pain relief for Mulesing; 92% merino producers and 89% non-merino producers
- Pain relief for castration 25% national sheep producers
- Pain relief for tail-docking 44% national sheep producers

*ABARES FY21 76,009 grazing businesses EVAO >$40,000 pa.

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MLA Adoption Program

Awareness Activities	Short-term training programs	Long-term practice change
BeefUp Forums (Nth Aus)	Edge Network e.g. Nutrition EDGE	Producer Demonstration Sites (PDS)
MeatUp Forums (Sth Aus)	Bred Well Fed Well (Sheep & Cattle)	Profitable Grazing Systems (PGS)
Webinars e.g. Profitability & Productivity and Websites resources e.g. FutureBeef, ParaBoss, Transport Hub	'The Toolbox' e-learning platform	-
Publications & resources e.g. case studies, videos, guidebooks, websites	-	-

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The toolbox
Online training, tools and resources

Producer Demonstration Site

Profitable Grazing Systems
your pathway to success

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BredWell FedWell
Breeding and feeding to maximise profit

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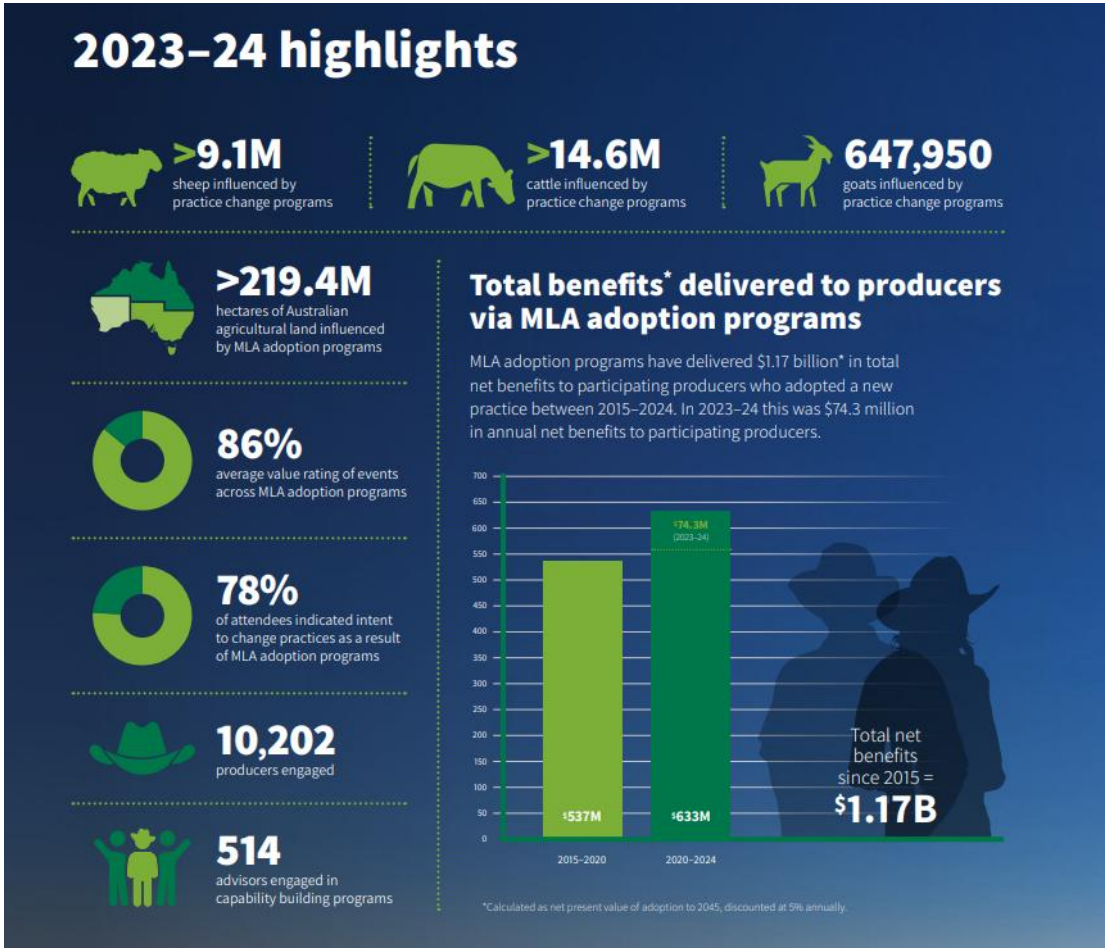
FY24 Impact Summary



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What's new

- BredWell FedWell
- Carbon EDGE

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What do you learn in Carbon EDGE?

- Understand opportunities for reducing emissions and carbon storage
- Undertake a carbon account
- Develop an action plan for your business
- Modules include:
  - Greenhouse gases 101
  - Greenhouse gas accounting
  - On-farm emissions
  - On-farm sequestration
  - Carbon credits and carbon neutrality

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Bred Well Fed Well

BredWell FedWell
Breeding and feeding to maximise profit

- 1-day workshops
- Putting theory into practice
- Genetics and nutrition focus for sheep & cattle
- Hosted on-property with access to stud stock with EBVs or ASBVs
- Participating cattle producers, on average, receive an annual net benefit of **$3/cow managed**.
- Participating sheep producers, on average, receive an annual net benefit **$0.65/ewe managed**

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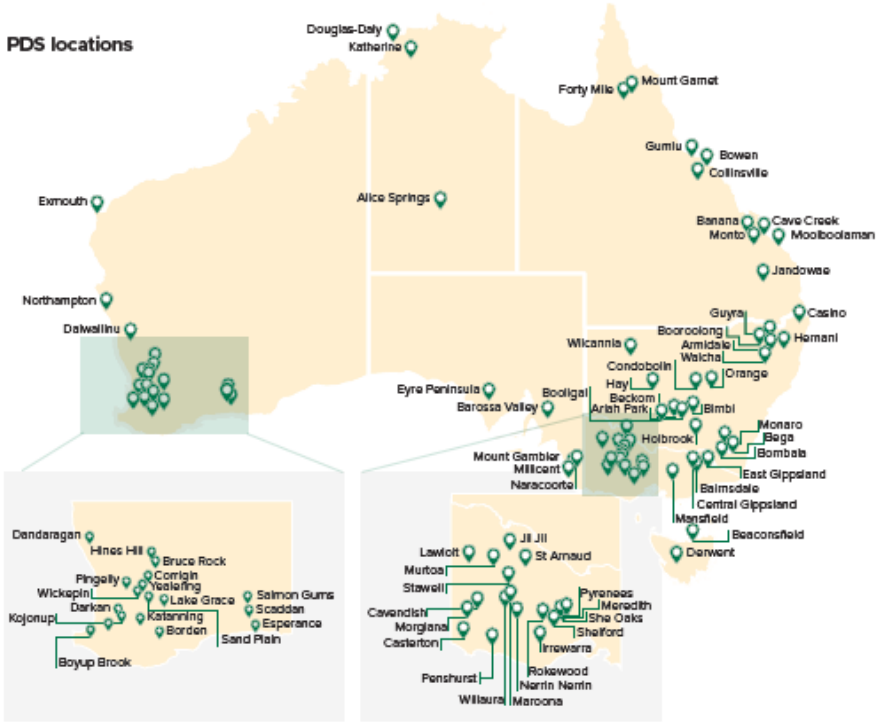
Producer Demonstration Site



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51 Active Levy & Co-contributor PDS projects nationally

14 Integrated R&D PDS projects nationally

Overview

1. Market update
2. How to get involved with MLA RD&A
3. **Animal Wellbeing Update**

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Generating supply chain value

Will Atkinson

Meat & Livestock Australia

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Overview

- Drivers of eating quality – Beef and Sheepmeat
- Performance benchmarking
- What is your target market

Drivers of eating quality

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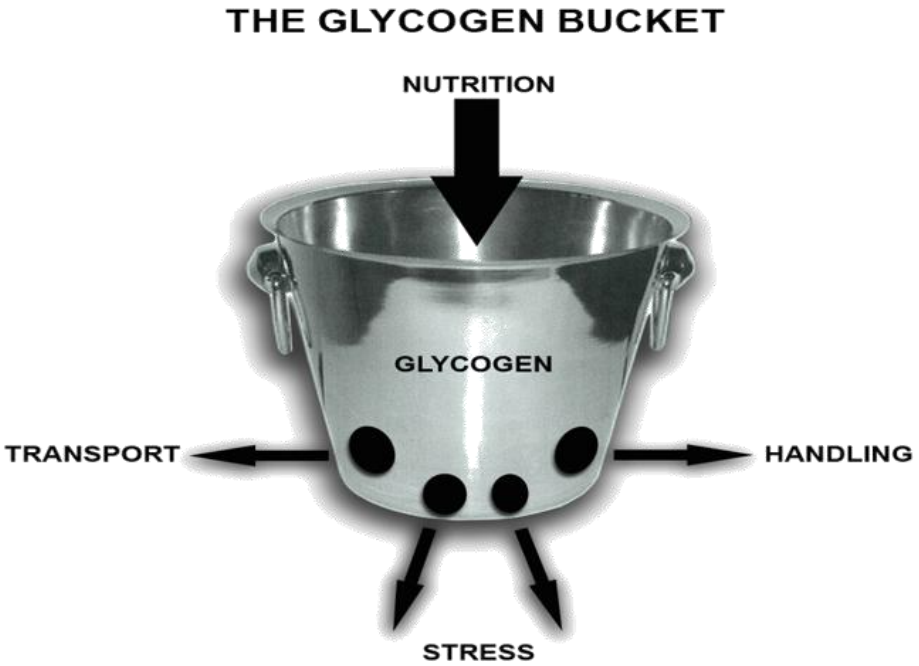
Maximise glycogen levels

- Nutrition
- Mixing, drafting
- Animal health
- Heifers in oestrus
- Weather events
- Loading/unloading



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Beef - The MSA Index

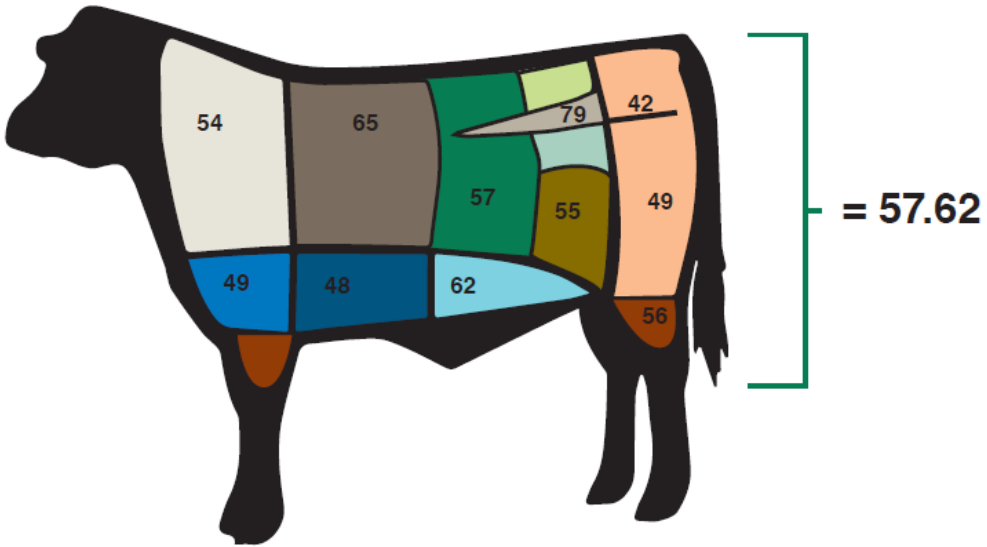

Illustration for example purposes only

- A **single number** to indicate the overall quality of a carcase
- A weighted average of 39 eating quality scores of the primals
- Benchmarking tool to measure performance.

The predicted eating quality of a carcase based on producer-controlled attributes

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Beef - Key drivers of the MSA Index

Carcase Input	Size of effect on the MSA Index (units)	Relative Importance
HGP Status	-5	Very High
Milk-fed Vealer	4	Very High
Saleyard	-5	Very High
MSA Marbling	0.15	High
Hump Height	-0.7	High
Ossification	- 0.6	High
Rib Fat	0.1	Medium
Hot Standard Carcase Weight	0.01	Low
Gender	0.3	Low

MSA Index quantifies the impact of production decisions

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MSA Sheepmeat Model

- Recent development based on over a decade of R&D
- Based on untrained consumer sensory scores (gold standard)
- Enabled by objective measurement technology
- Relationship to traits that explain eating quality variation

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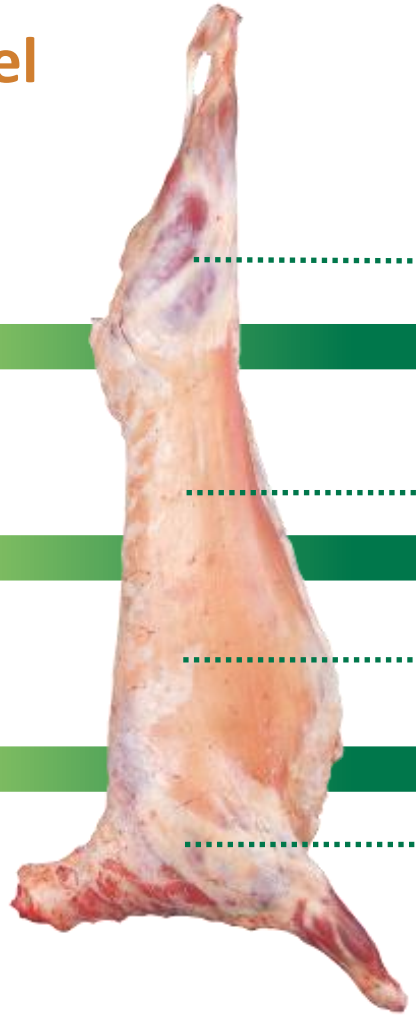
The MSA Sheepmeat Model

Inputs

- Hot standard carcase weight (HSCW)
- Lean meat yield (LMY%)
- Intramuscular fat (IMF%)
- Electrical stimulation
- Ageing
- Modified atmospheric packaging



Leg
Rump
Shortloin
Knuckle
Rack
Topside
Shoulder
Outside
Grill
Roast

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Performance benchmarking

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How are you performing?

Finishers

- myMSA
- myFeedback – all carcase data
  - Animal disease and defect

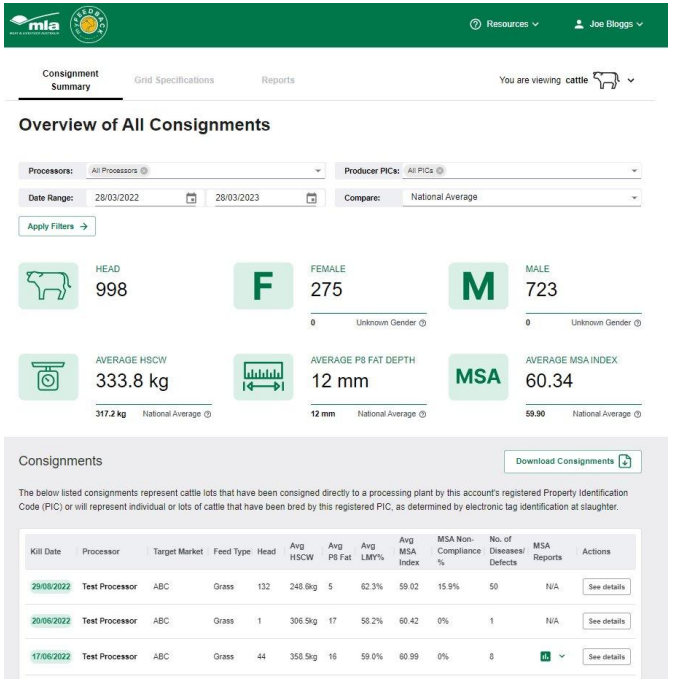
Breeder/Backgrounders

- Performance from the feedlot?
- Through myFeedback

What is myFeedback

One system, more data, better insights

- Combining carcase, eating quality and disease & defect data in one single access point (NLIS, MSA, AHA, NLRS)
- System access will be available for all participating cattle and sheep producers, processors and brand owners.



Benefits for Producers

- Understand compliance to market specs and benchmark livestock performance
- Identify opportunities for proactive disease management & prevention
- Access to “Solutions to Feedback” to help improve performance

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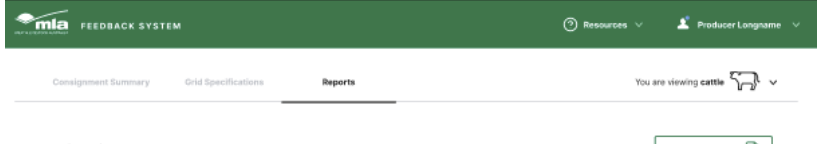
myFeedback



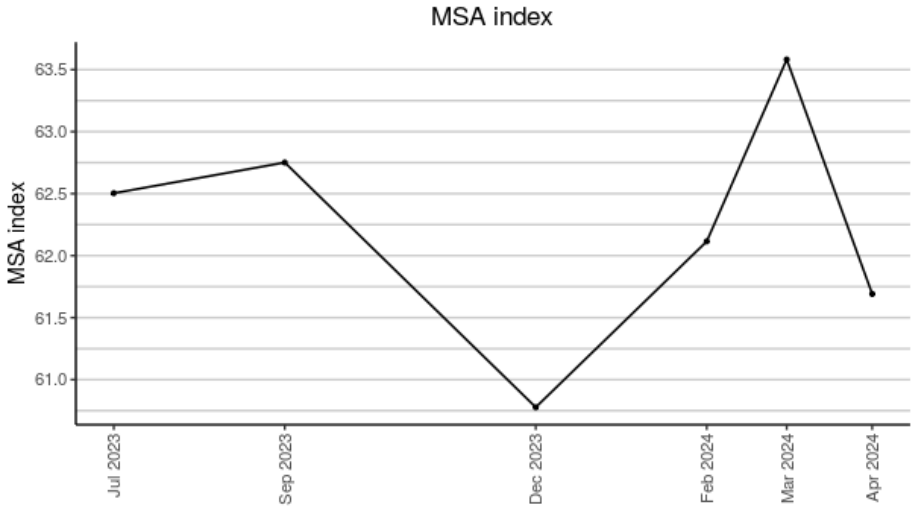
Animal Diseases and Defect by Carcase Traits

Selected Trait: MSA Index

Health Conditions	More Info	No. Head	Average MSA Index
Nephritis	Info	1,147	62.65
Healthy		11,314	63.00
Pneumonia	Info	3,163	63.15
Hydatids	Info	535	63.20
Abscess	Info	639	62.73
Fluke	Info	740	62.71

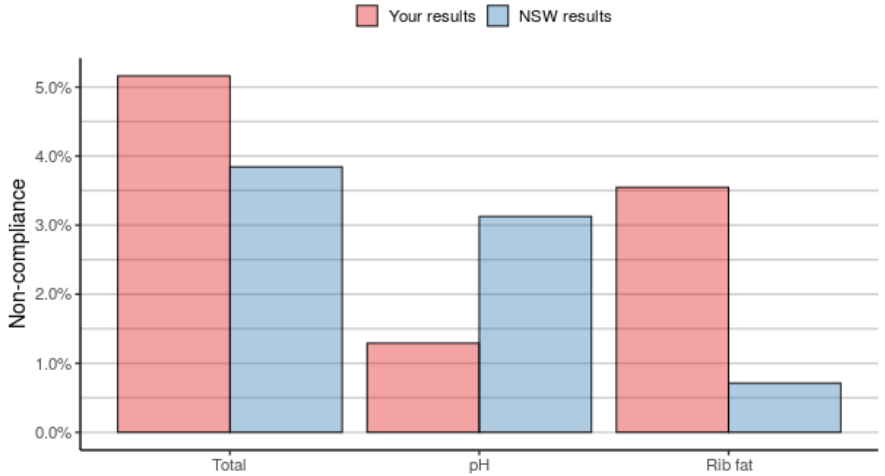
Benchmarking your performance

- Access benchmarking data in myMSA



Compliance

	Your results (n)	Your results (%)	NSW (n)	NSW (%)
Total carcases	310		927957	
Non-compliant	16	5.2%	35673	3.8%
Non-compliant pH	4	1.3%	29008	3.1%
Non-compliant rib fat	11	3.5%	6613	0.7%



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Benchmarking your performance

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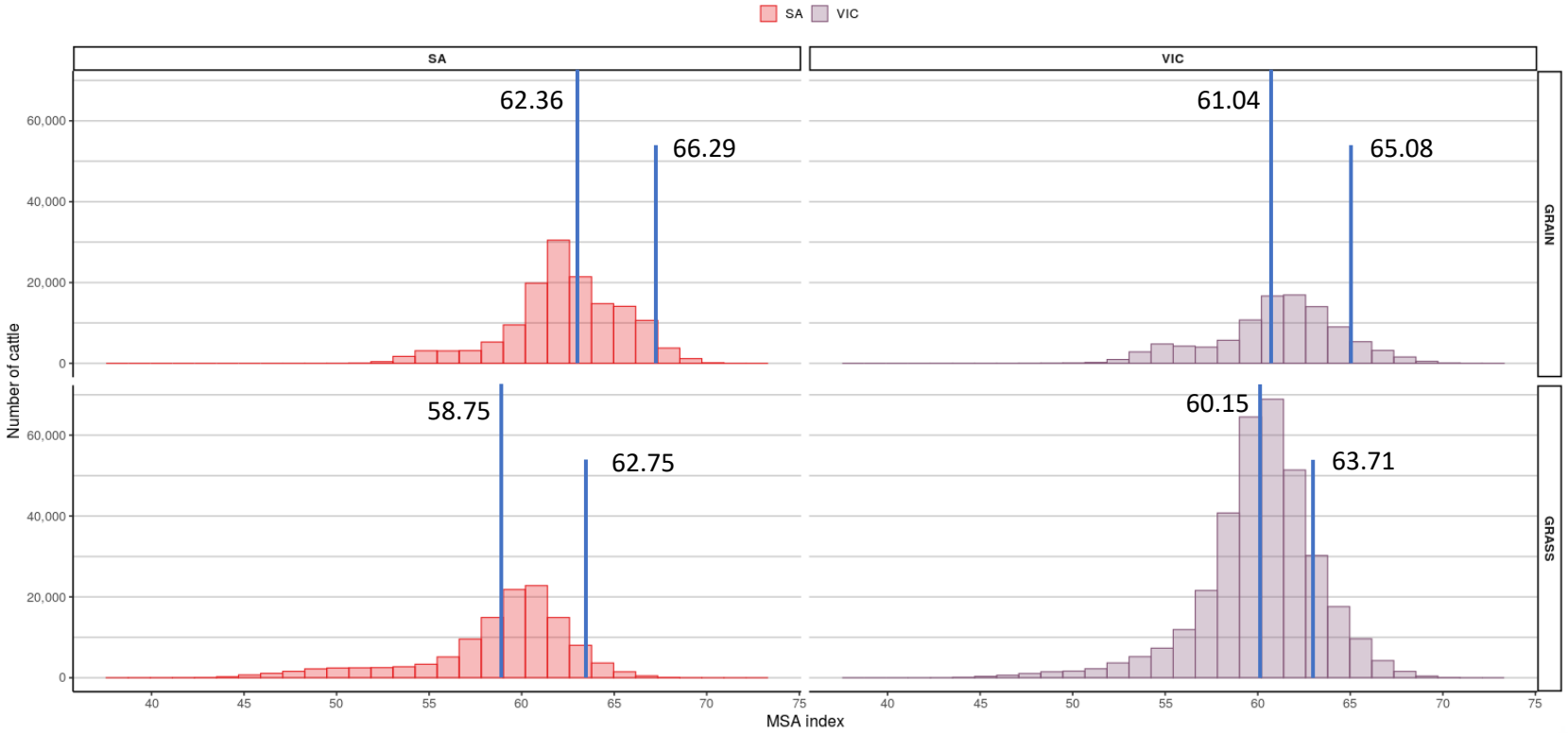
Benchmarking your performance



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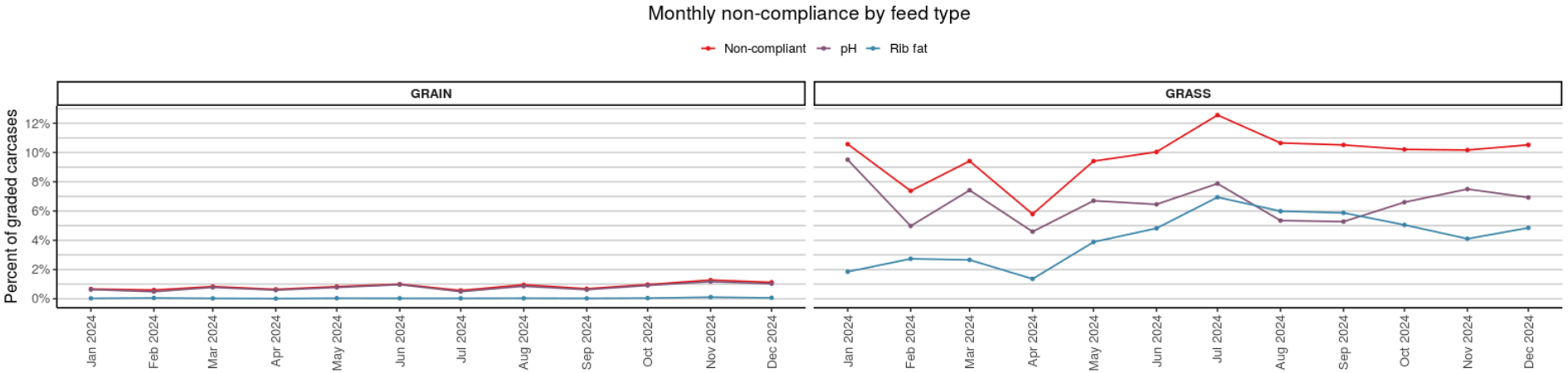
Reducing non-compliance

MSA compliance

- Pre-slaughter requirements
- pH < 5.71
- Rib Fat ≥ 3mm
- Adequate fat coverage across all primals



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What is your target market?

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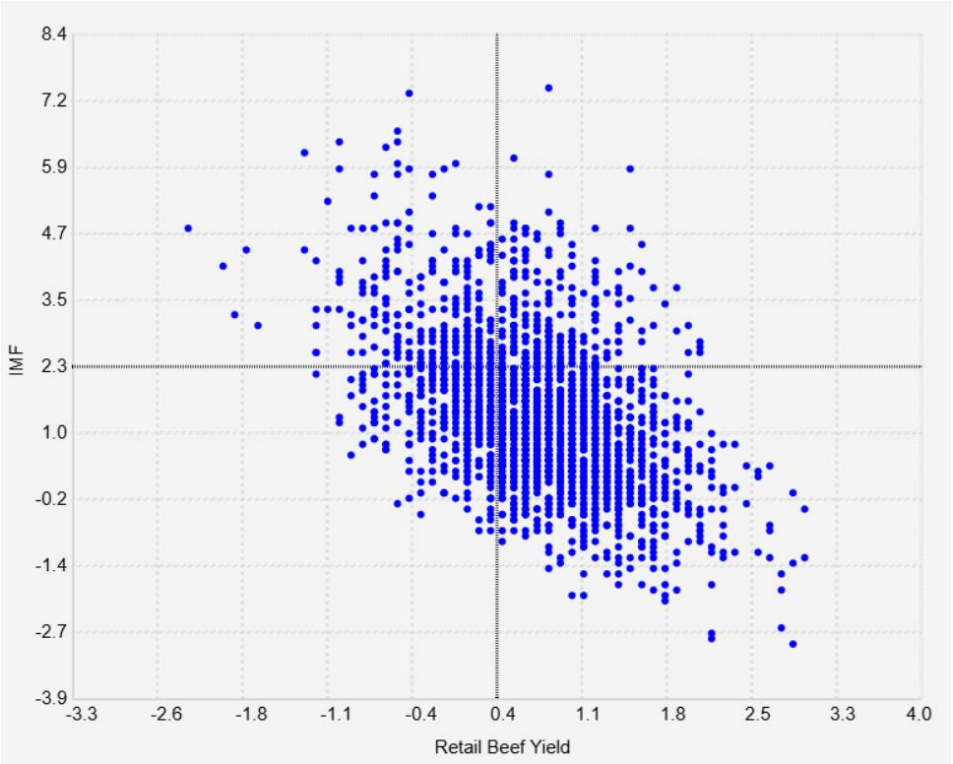
What is your target market?

- **Align your breeding objective**
  - Bred Well, Fed Well
  - Don’t chase extremes or single traits
  - Balance is key

- **Trading**
  - What do you know about your livestock?
  - What information do you gather?



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Traits driving the outcomes

Market	**Domestic**	**Export**
HGP	N	N
Sex	M	M
HSCW (kg)	240	320
TBC	N	N
Hump	60	80
Ossification	120	200
MSA Marb.	320	600
RF	6	12
MSA Index	62.24	62.53

CARCASE IMAGE

Understand the market requirements

MSA Specifications

- Compliance to pH and rib fat
- MSA Index *or* Boning group requirements

Company Specifications

- Meat colour
- Fat colour
- HSCW
- P8 Fat

Establish and maintain relationships

- Feedlots
- Processors
- Buyers/Agents

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Take home messages

Drivers of eating quality

- Nutrition and stress management for glycogen reserves
- MSA Sheepmeat model for individual carcase grading of sheepmeat

Performance Benchmarking

- Understand your performance compared to where you want to be
- Utilise the tools available to help pull the right levers on farm

Target Maket

- Know the target market you are aiming for to get the most value out of your production system.

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Tools and resources

Links

- myMLA
- myFeedback
- Solutions to Feedback Library
- myFeedback Video Guides

Resources

- Beef Eating Quality Insights
- Beef Tips and Tools
- MSA Sheepmeat Factsheet

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Containment feeding – The good, the bad and the ugly

Deb Scammell

Talking Livestock

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The Good……

Ground Cover

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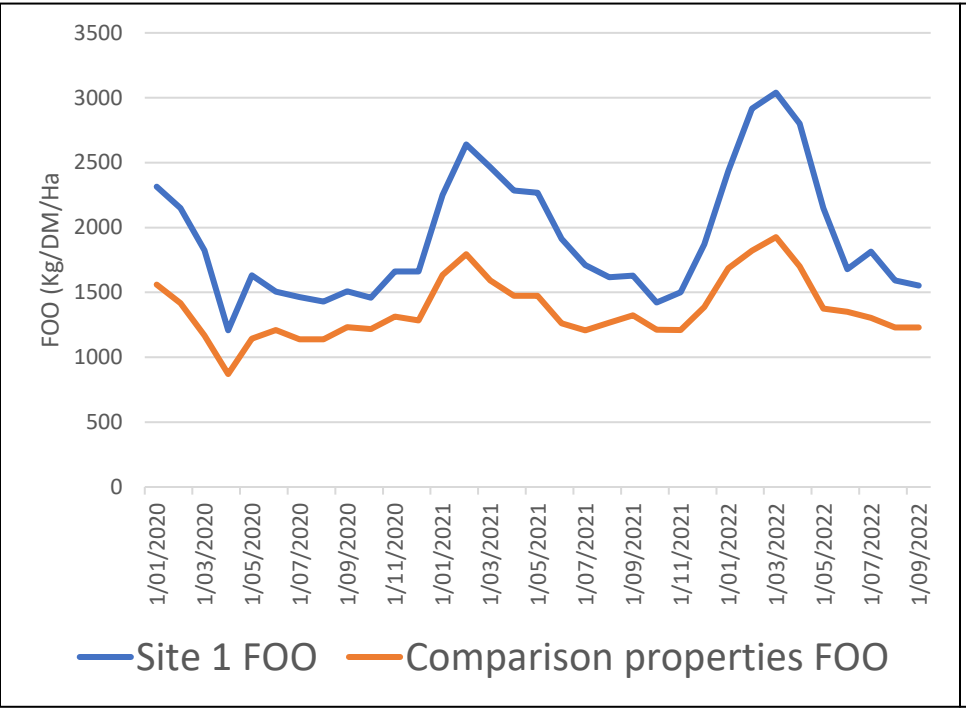

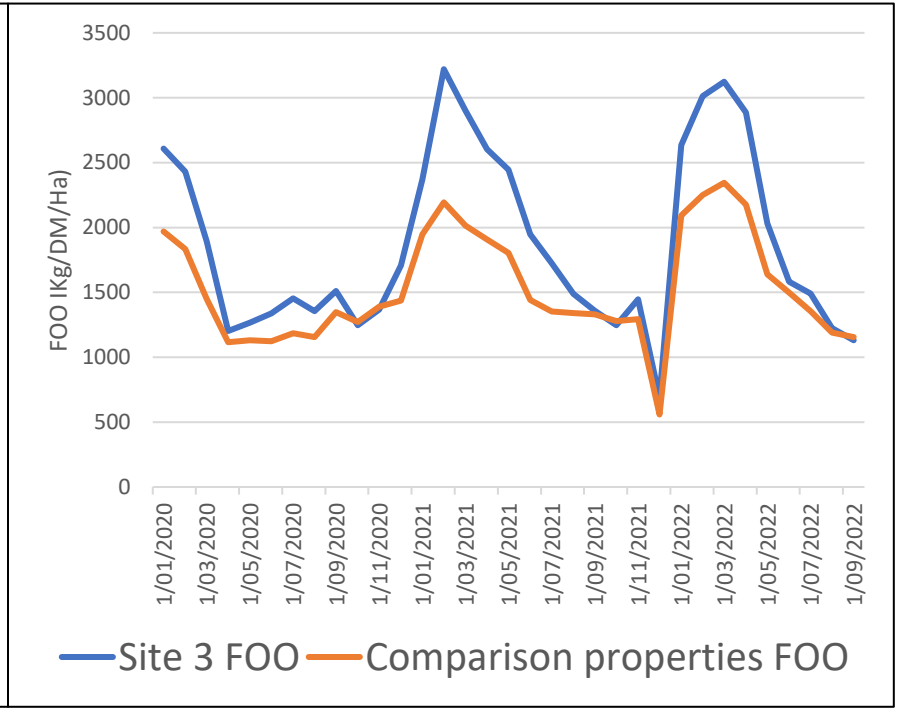

Feed on Offer comparison

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Individual management

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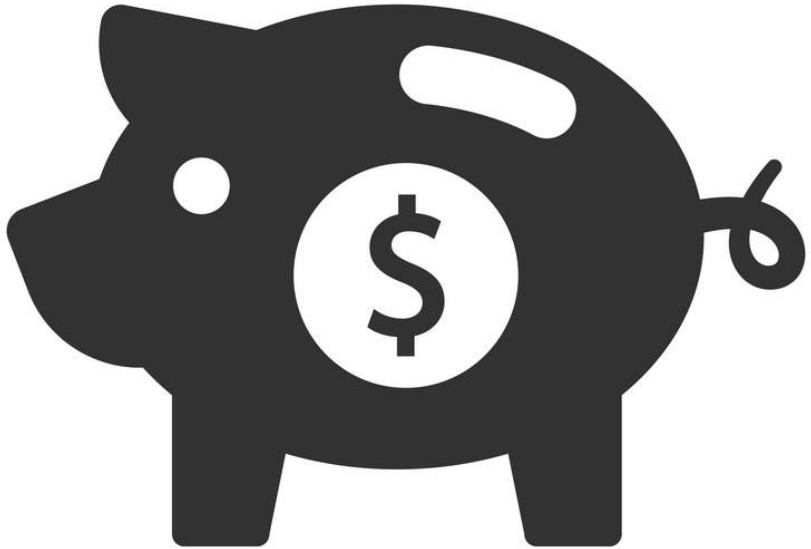

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Net Benefit = $5.30 - $8.00 / ewe


You Are In
Control !

Setting up a system that works!!

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Feeding Systems

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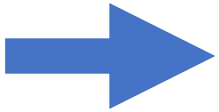
The Bad……

Condition Score Spread



Large mob sizes

Inadequate trough space

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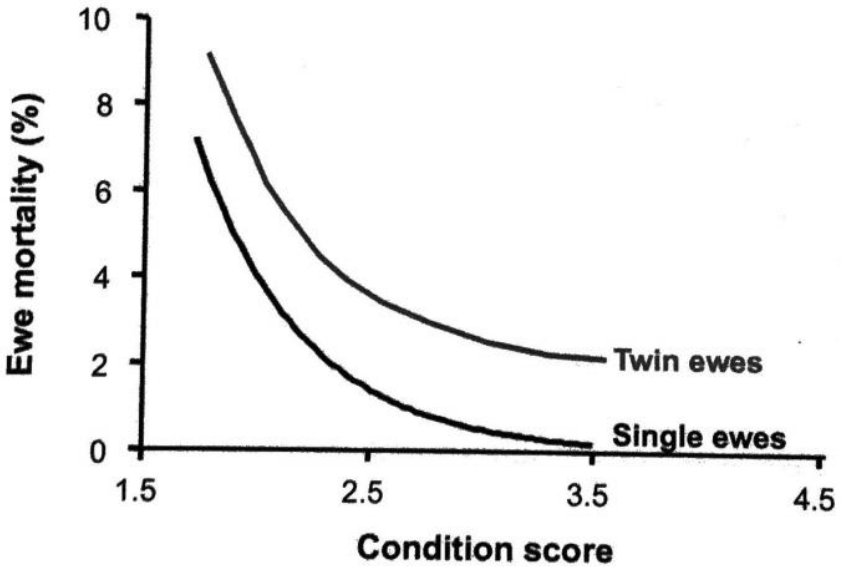
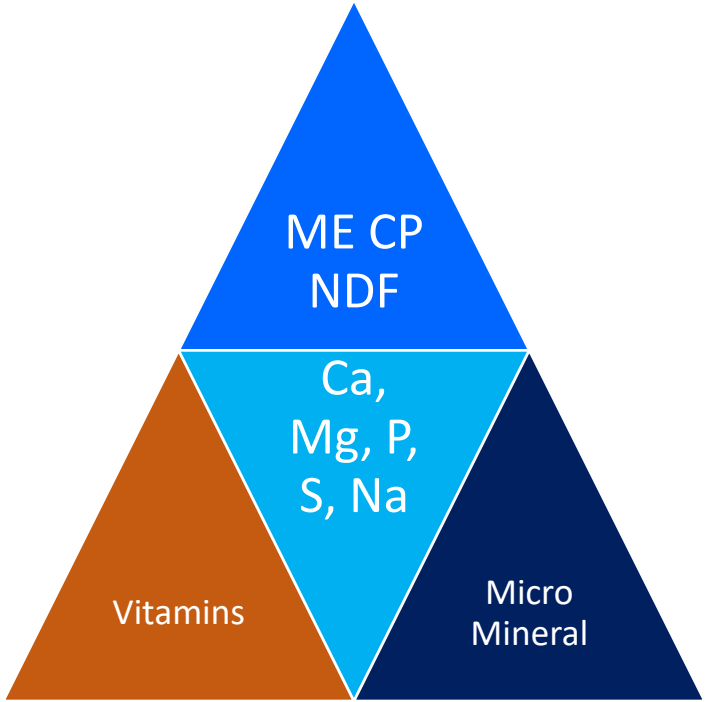
Mortality of Merino ewes in late pregnancy in relation to condition score



Source: Lifetime Wool

Livestock essential nutrients



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Energy Requirements

TABLE 1a.
Energy Required by Ewes @ Condition Score 3 to maintain weight

Maintenance energy (MJ/d) for ewes under paddock conditions							Confinement Fed	
day of pregnancy	small frame (45kg) maintain CS 3 single	twin	medium frame (50kg) maintain CS 3 single	twin	large frame (60kg) maintain CS 3 single	twin	medium frame (50kg) maintain CS 3 single	twin
dry	7.8	7.8	8.3	8.3	9.9	9.9	6.7	6.7
50	8.1	8.2	8.6	8.7	10.1	10.3	6.9	7.2
70	8.3	8.7	9.1	9.4	10.5	10.9	7.4	7.7
100	9.3	10.3	10.3	11.5	11.8	13.2	8.3	9.6
130	11.6	14.4	12.8	15.9	14.8	17.9	10.9	11.7
days lactating	**maintain CS 3 single**	**twin**	**maintain CS 3 single**	**twin**	**maintain CS 3 single**	**twin**	**maintain CS 3 single**	**twin**
10	17.7	22.0	19.2	24.0	21.9	28.7	ask for advice on confinement feeding ewes and lambs	
30	19.2	24.1	20.8	26.5	23.4	29.8		
50	15.8	19.5	17.2	21	19.4	24.2		

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Tools in our Toolbox

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Fibre

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The Ugly……

Fat Ewes

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Metabolic issues

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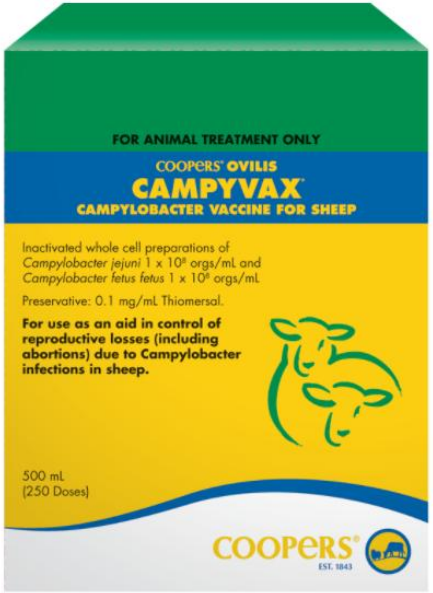
Campylobacter



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Other health issues??

Take home messages

Containment is a great tool, for ewe and pasture management.

Success can be great but requires planning, correct nutrition and monitoring.

Manage mineral balance and potential health issues.

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Tools and resources

MLA: https://www.mla.com.au/extension-training-and-tools/producer-demonstration-sites/containment-feeding/

Barossa Improved grazing group: https://biggroup.org.au/

Livestock SA - https://livestocksa.com.au/events/webinars

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Morning tea

30 minutes

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The power of on-farm data: What and when

Sally Martin

Sheep MetriX

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What is the power of on-farm data?

- What data will benefit your business / enterprise?
- What and when you collect data? Will influence how useful it is.
- How you use the data is where you will find the power…..
  - Finding the good and/or poor performers – then what do we do with them?
  - The timing of our decisions.
- Can you use the data more than once?

RFID / EID

The eID tag is the enabler.

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Some eID Terms

- NLIS – National Livestock Identification
- VID – Visual tag identification (tag number)
- eID – Electronic Tag (RFID)
- Stick Reader
- Indicator – scale head; weigh scale
- Panel reader
- Bucket file - eID and VID paired in excel
- Connectivity – do you need this?
- Digital literacy……

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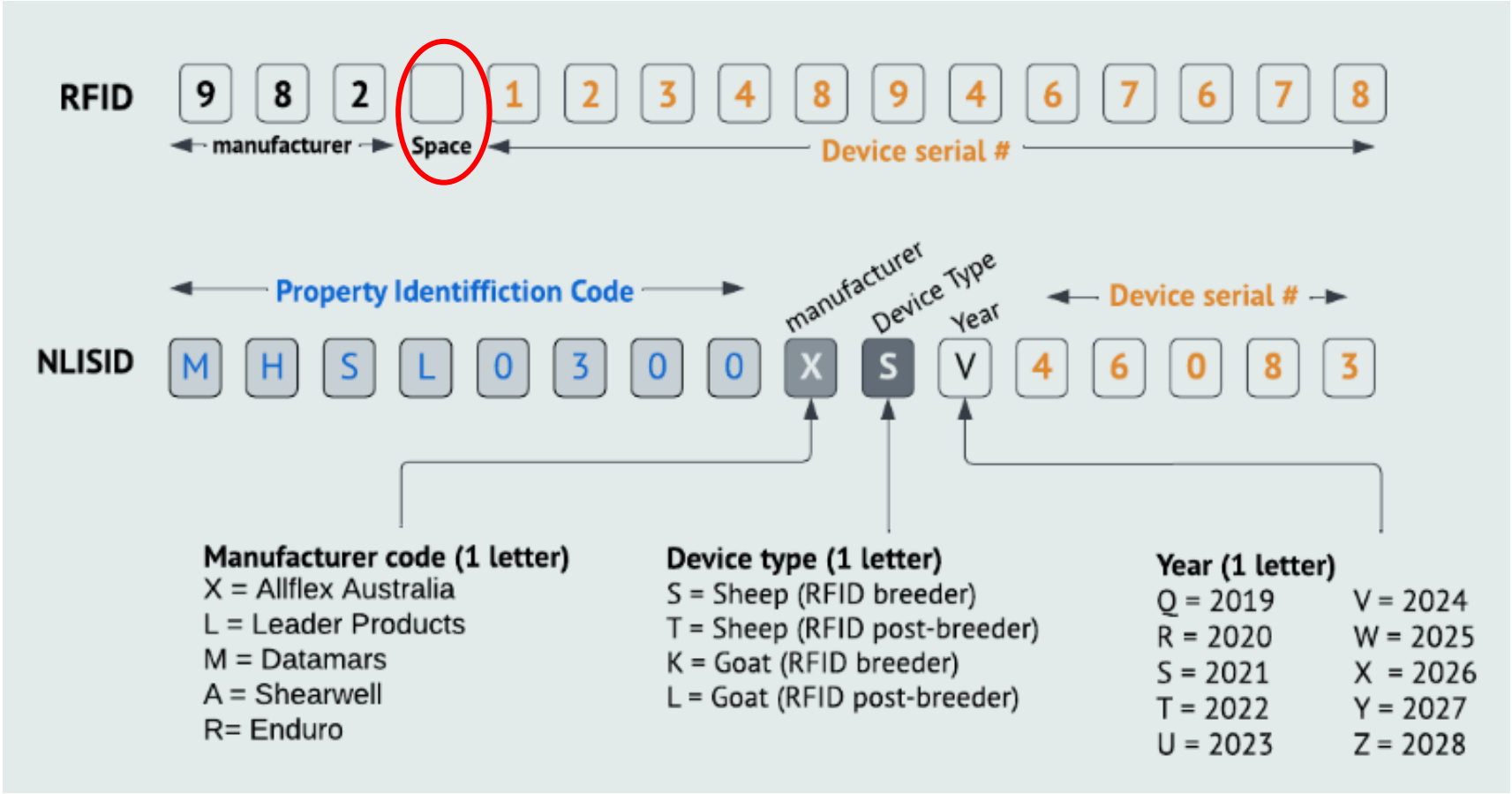
RFID
9 8 2 1 2 3 4 8 9 4 6 7 6 7 8
manufacturer
Space
Device serial #
Property Identifficfion Code
manufacturer
Device Type
Year
Device serial #
NLISID
M H S L 0 3 0 0 X S V 4 6 0 8 3
Manufacturer code (1 letter)
X = Allflex Australia
L = Leader Products
M = Datamars
A = Shearwell
R= Enduro
Device type (1 letter)
S = Sheep (RFID breeder)
T = Sheep (RFID post-breeder)
K = Goat (RFID breeder)
L = Goat (RFID post-breeder)
Year (1 letter)
Q = 2019
R = 2020
S = 2021
T = 2022
U = 2023
V = 2024
W = 2025
X = 2026
Y = 2027
Z = 2028

Tags

Colour	Red	Blue	Black	White	Orange	Green	Purple	Yellow
Year	2022	2023	2024	2025	2026	2027	2028	2029

- eID tags options
  - Allflex – Rapid Tag
  - Datamars – Zee Tag
  - Leader – Multitronic
  - Shearwell – eID
  - Enduro

- **Tag placement** – super important
- Put your order in **after pregnancy scanning**
  - Tag numbering – Year + Number eg 230001

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Hardware

- Stick readers
- Panel readers
- Indicator
- Handlers/weigh crates

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What data should you collect?

- Depends on your breeding or production objective
- What type of enterprise(s) are you running?
  - Meat Focused
  - Fibre Focused
- Only collect data you are going to use
- Be able to compare across years/seasons/enterprises/time
  - Per head
  - Per hectare
  - Per kg
  - g/head/day

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Breeding objective

- It is really important to capture your breeding objective and have a clear goal on how you are going to use your data.

- SMART
  - Specific
  - Measurable
  - Attainable
  - Relevant
  - Time Based

Breeding Objective				
Traits	Increase	Maintain	Decrease	Measure
Fleece Weight		✓		Maidens
Micron			✓✓	Maidens
Growth Rates	✓✓✓			All up to 300 days
Mature Size		✓		Joining Wts
Reproduction	✓✓✓			Preg; Wet & Dry
Muscle & Fat	✓	✓		Rams
Worms			✓✓	Rams
Wrinkle			✓✓✓	Marking

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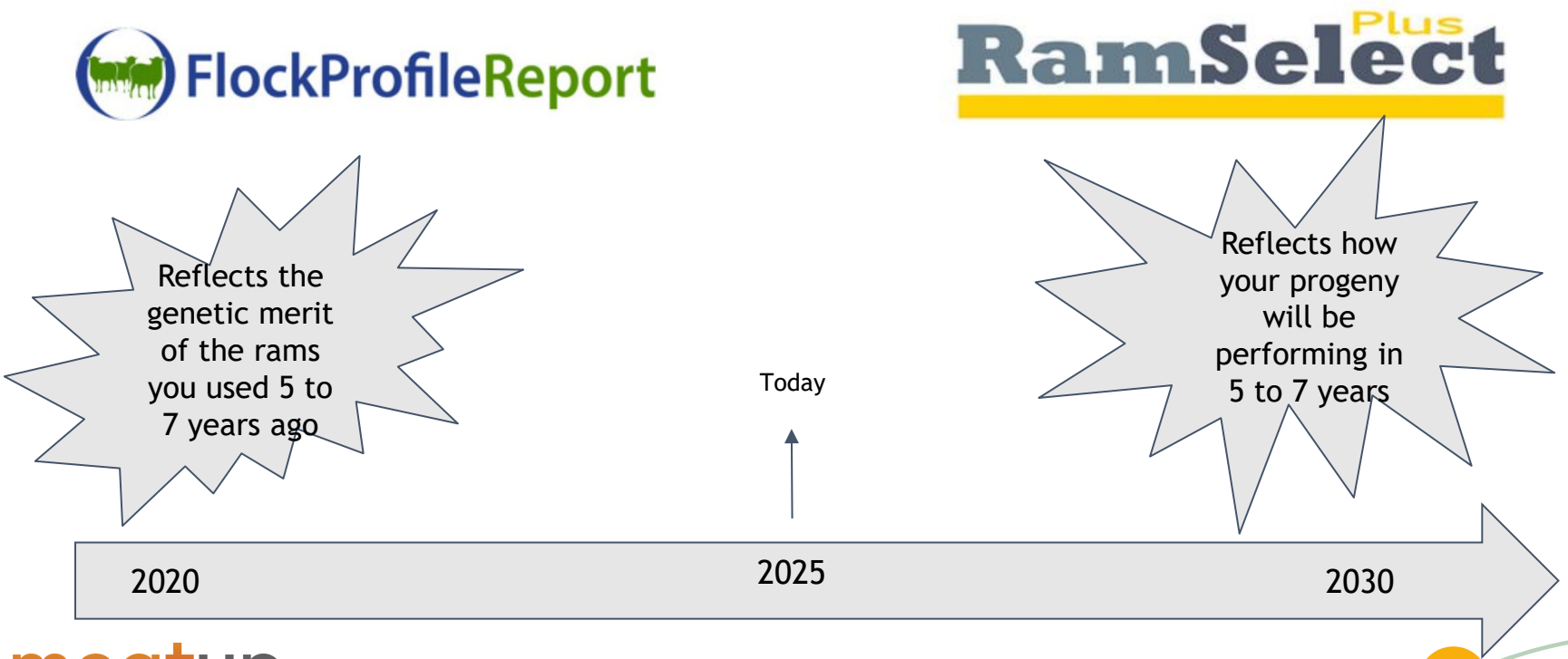
Ram Team Manager & Flock Profile



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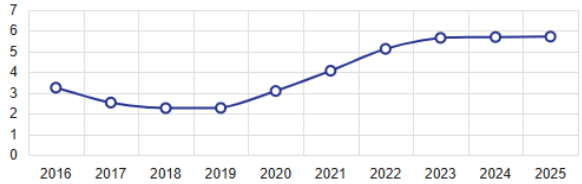
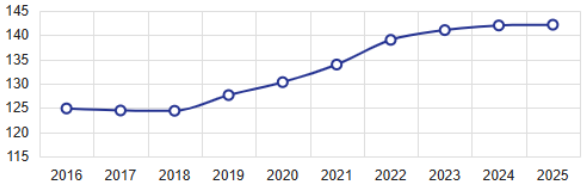
Ram Team Manager – genetic trends

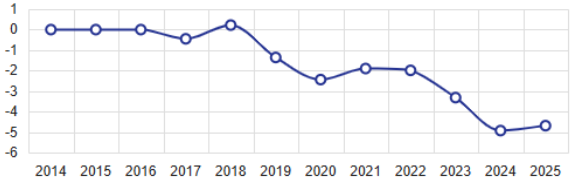
Post Weaning Weight (kg)



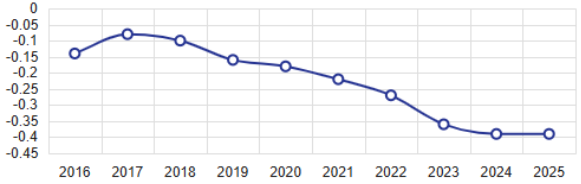
Sustainable Merino (score)



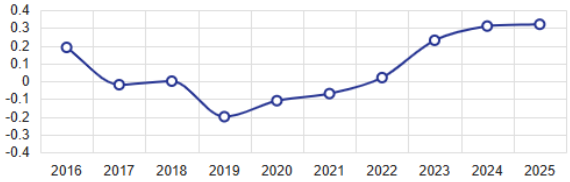
Yearling Worm Egg Count (%)



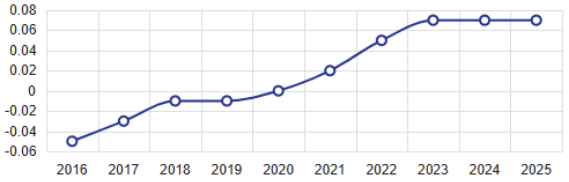
Early Breech Wrinkle (score)



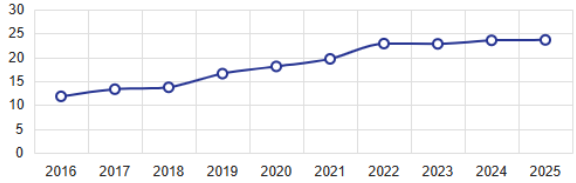
Yearling Eye Muscle Depth (mm)



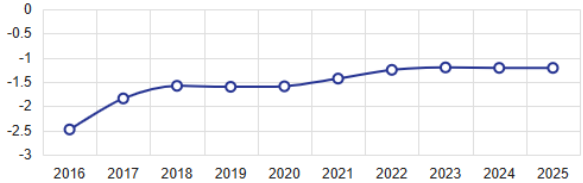
Weaning Rate (score)



Yearling Clean Fleece Weight (%)



Yearling Fibre Diameter (µm)



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When to collect data?

- When do you need data to make a decision
  - Classing/Selection
  - Joining; Pre lambing; Pre-sale
- What does your calendar look like normally?
- Can you fit data collection into your current program?
- Do you have the gear and capacity to DIY?
- Do you need to get someone in to do it for you?

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Month	2024	2025	2026	2027
January	Joining (24 Drop)	Joining (2025 Drop)	Joining (26 Drop)	Joining (2027 Drop)
February				
March				
April	Main Shearing (Collect GFWs on 2023 drop) + Preg Scan	Main Shearing (Collect GFWs on 2024 Drop + Preg Scan	Main Shearing (Collect GFWs on 2025 drop) + Preg Scan	Main Shearing (Collect GFWs on 2026 Drop) + Preg Scan
May				
June	Lambing (24 Drop) + Marking (EBWR, Age, BCOV, Paddock)	Lambing (25 Drop) + Marking (EBWR, Age, BCOV, Paddock)	Lambing (26 Drop) + Marking (EBWR, Age, BCOV, Paddock)	Lambing (27 Drop) + Marking (EBWR, Age, BCOV, Paddock)
July				
August				
September	Weaning (2024 Drop) + Classing	Weaning (2025 Drop) + Classing	Weaning (2026 Drop) + Classing	Weaning (2027 Drop) + Classing
October				
November				
December				

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Month	2023	2024	2025	2026	2027
January	Main Shearing **(Tip shear on 22 drop)**	**Joining (24 Drop)**	Main Shearing **(Tip shear on 2024 Drop)**	**Joining (26 Drop)**	Main Shearing **(Tip shear on 2026 Drop)**
February	Preg scan		Preg scan		Preg scan
March					
April	Lambing **(23 Drop) + Marking (EBWR, Age, BCOV, Paddock)**	Main Shearing **(Collect GFWs on 2023 drop) + Preg Scan**	Lambing **(25 Drop) + Marking (EBWR, Age, BCOV, Paddock)**	Main Shearing **(Collect GFWs on 2025 drop) + Preg Scan**	Lambing **(27 Drop) + Marking (EBWR, Age, BCOV, Paddock)**
May					
June		Lambing **(24 Drop) + Marking (EBWR, Age, BCOV, Paddock)**		Lambing **(26 Drop) + Marking (EBWR, Age, BCOV, Paddock)**	
July	**Weaning (2023 Drop)**		**Weaning (2025 Drop)**		**Weaning (2027 Drop)**
August	Main Shearing **(Collect GFWs on 2022 Drop)**		Main Shearing **(Collect GFWs on 2024 Drop + Tip shear on 2025 Drop)**		Main Shearing **(Collect GFWs on 2026 Drop + Tip shear on 2027 Drop)**
September	**Classing**	Weaning **(2024 Drop) + Classing**	**Classing**	**Weaning (2026 Drop) + Classing**	**Classing**
October					
November		**Joining (2025 Drop)**		**Joining (2027 Drop)**	
December					

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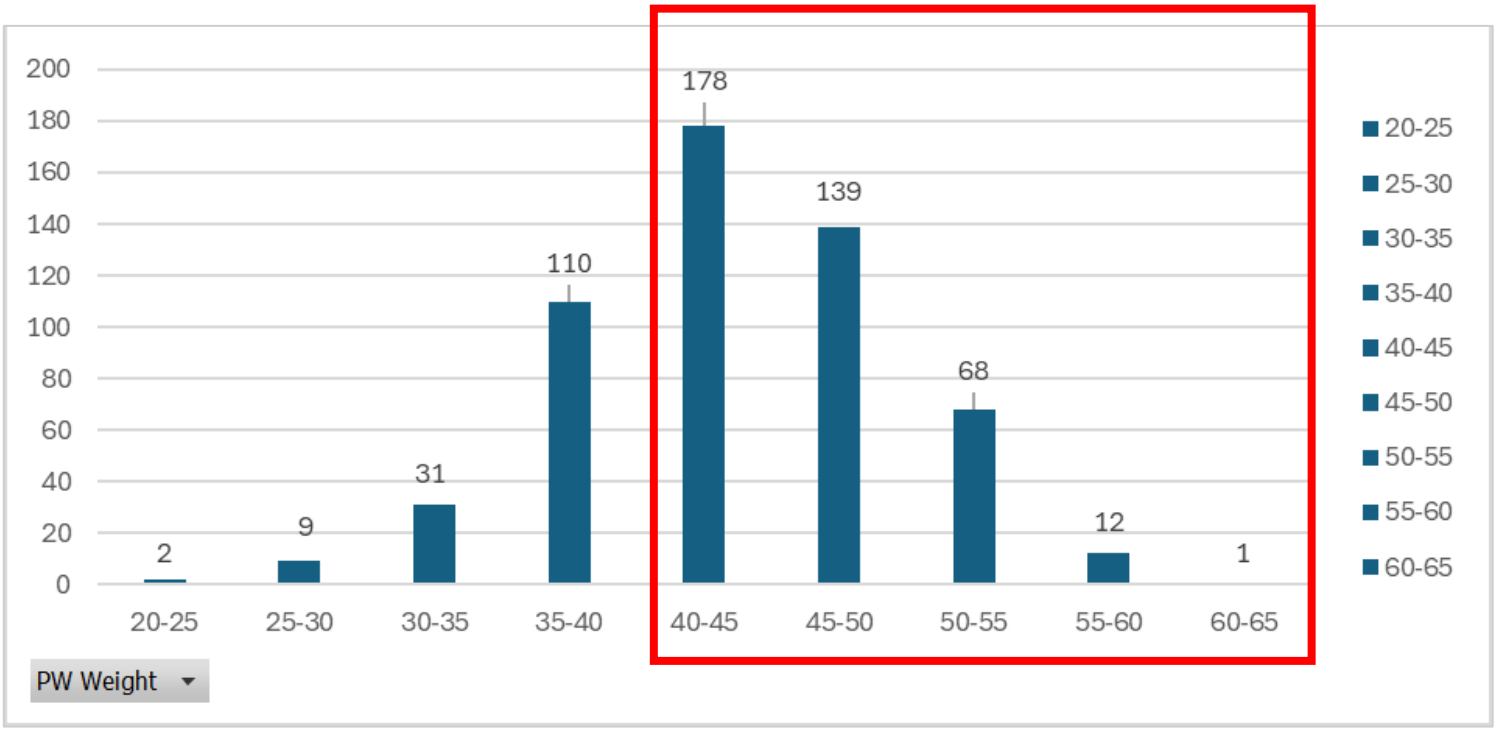
When to collect data?

Ewe Lamb Group	Count	Ave. Body Weight (kg)	ADG Weaning to 28/02/2025 (kg/hd/day)
Ewe Lamb Lambs	39	37.2	0.175
Purchased in ewes	124	47.4	0.153
MA Dam Lambs	383	42.8	0.100
Total / Average	**546**	**43.4**	**0.118**

- **Example – Joining ewe lambs**
  - Look at your calendar – what month will you join them?
  - Weaning – collect a weaning weight
  - Growth rates – set dates to weigh lambs and monitor growth rate
  - Joining weight
  - Preg scan weight
  - Pre lambing weight

Are we meeting our targets?



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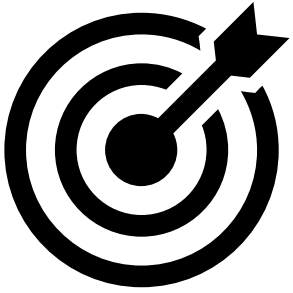
Data collection timing and protocols

- **Based around your calendar of operations you should have**
  - When you carry out current management/husbandry
  - This can then inform when you collect the data on the traits that are important to you breeding objective
  - And when you need the data to make decisions eg classing/mating
- **Protocols**
  - Body weights – 2 hours off feed, collect as quickly as possible
  - Fleece – min 9-10 months of age; 5 mths wool FD; 6 mths wool GFW
  - Be consistent eg mid side sample – pin bone or midside; condition scoring
  - Visual Scores – follow the score guide



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Data capture without scanning a tag

- At lamb marking capture the tag number sequence for each mob
  - Example record birth type, dam age, paddock
    - Tags 240001 to 240250 – Twins out of Maiden ewes; Hill Paddock
    - Tags 240251 to 240700 – Single out of MA ewes; Dam Paddock
- Add these columns in your bucket file – BT, Dam Age, Paddock

	A	B	C	D	E	F
1	EID	VID	YOB	BT	DAM AGE	BT PDK
2	940 110029951161	220001	2022	2	Maiden	HILL
3	940 110029951162	220002	2022	2	Maiden	HILL
4	940 110029951163	220003	2022	2	Maiden	HILL
5	940 110029951166	220251	2022	1	MA	DAM
6	940 110029951167	220252	2022	1	MA	DAM

Data capture example cont.

- The data captured at marking can be used later – you can even draft on this information
  - Example
    - When you class the ewes you can draft and class them separately
      - Twins out of maidens, twins out of MA, single etc
      - Classing the twins first so they are not disadvantaged due to size
- Data that will require scanning a tag at marking
  - Collect the above +
    - Sex
    - Breech scores
    - Age score (eg 1 – 5)

Using the data

Class	Count	WT	CFW	FD	FLC Val	RP MP+ Index
Top	112	62.1	5.1	17.2	$104.59	110.4
2nd	112	58.9	4.8	17.6	$92.29	105.6
3rd	261	56.2	4.6	17.8	$85.89	100.7
4th	187	55.8	4.5	18.0	$81.28	94.2
CULL	74	52.8	4.5	18.6	$74.84	88.0
Total/Ave	**746**	**57.0**	**4.7**	**17.8**	**$87.41**	**100.0**

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Data use multiple times eg Preg Scanning

- Manage pre lambing; lambing paddock allocations
- Link across years
  - = Collate over time eg 0, 1, 2, 2, 0 …….01220
- How responsive is my flock (+ with condition score at joining)
- Birth type (on lambs)
  - Born in single or twin paddock
- Paddock analysis – lambing and weaning %
- Cross reference to WET & DRY @ Marking

Financial benefits of scanning for multiples

- Selling the dry sheep
- Better allocation of feed
  - Less feed to singles
  - More feed to multiples
- Better paddock to twins
  - + ewes lambs
- Use birth type when selecting your replacement ewes
- ROI = 474%

Management options	Scanning for multiples	$/ewe
Sell the passengers	✓	$1.85
Feed allocation:		
✓ to pregnant ewes	✓	$0.80
✓ to multiples	✓	$1.00
Paddock allocation	✓	$0.95
Replacement selection	✓	$0.95
Total value per ewe	**$5.55**	

Source: AWI & MLA(2014)

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Questions from clients

- How to upload data
  - Minor details eg headings – case sensitive
  - FD, fd, micron or BT, birth type, Birth Type
- Using the data
  - Pulling data together – multiple sources
  - Reporting – what format do you want it in?
- Essential
  - Have an idea of what you want to achieve or
  - What question(s) are you trying to answer
  - Then make a plan

Take home messages

- You don’t have to do everything yourself.
- You do need to be clear why you want to collect data & when you need it.
- Keep it simple, start small and build confidence.
- Stage your approach, there are varying levels of Tech.
- Look for other ways to use the same data.
- Review progress over time.

Tools and resources

- SheepMetriX – eID Implementation on Farm Workshop – www.sheepmetrix.com.au/eid-courses
- Excel for eID – Back to basics https://www.youtube.com/watch?v=zVZN0qfKiXs&t=157s
- Excel for eID – using your data effectively
- https://www.youtube.com/watch?v=Fq5C0op6NKk
- Excel for eID – building your data over time https://www.youtube.com/watch?v=7OJv5FwOpHE

Mum’s not angry, just disappointed

Prof. Wayne Pitchford
Davies Livestock Research Centre
University of Adelaide

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Mum’s not angry, just disappointed

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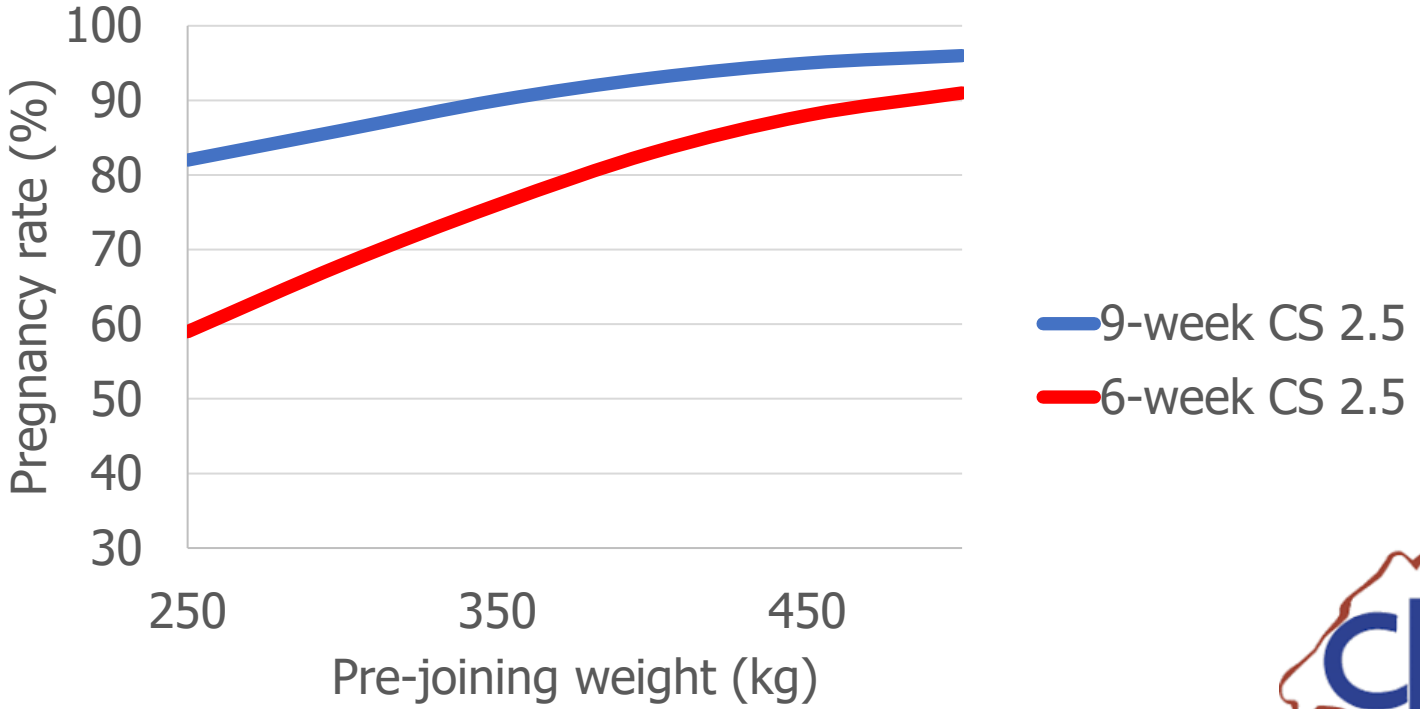
Female slaughter rate hits lowest level since 1996

02 March 2023

Beef CRC – pregnancy and weight



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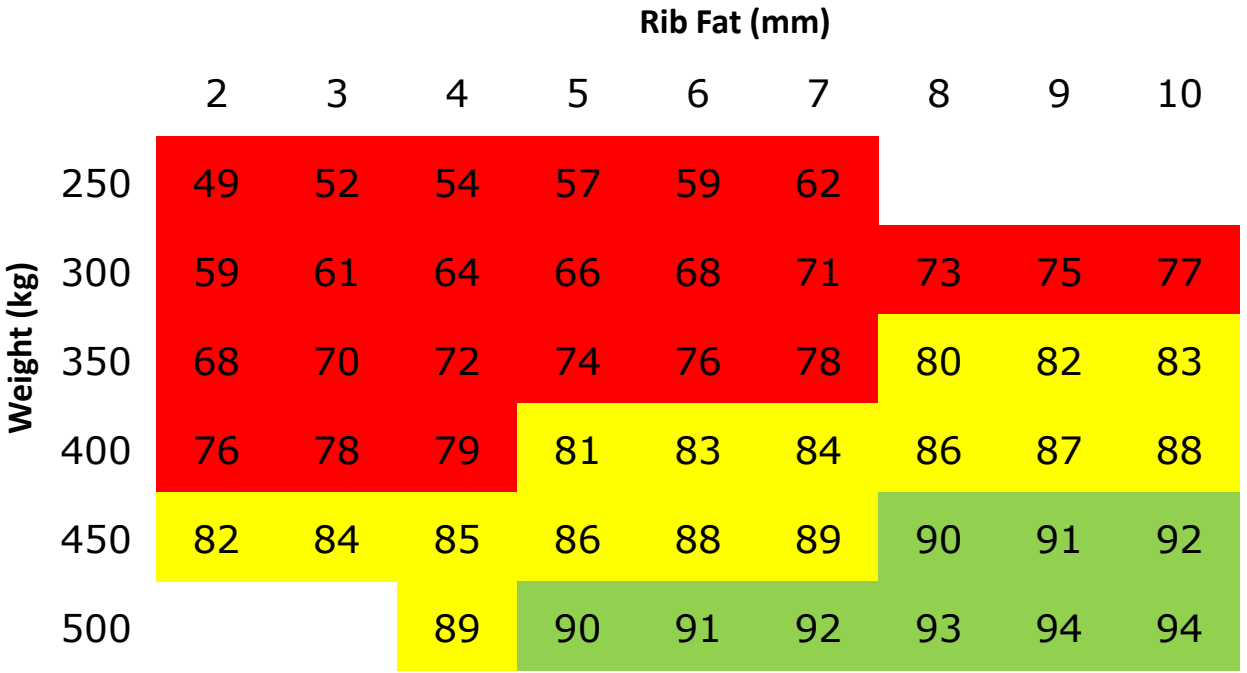
CRC BEEF

Target weight and condition at 400d



Weight (kg) \ Rib Fat (mm)	2	3	4	5	6	7	8	9	10
250	49	52	54	57	59	62			
300	59	61	64	66	68	71	73	75	77
350	68	70	72	74	76	78	80	82	83
400	76	78	79	81	83	84	86	87	88
450	82	84	85	86	88	89	90	91	92
500			89	90	91	92	93	94	94

Pregnancy rates after 6 week joining

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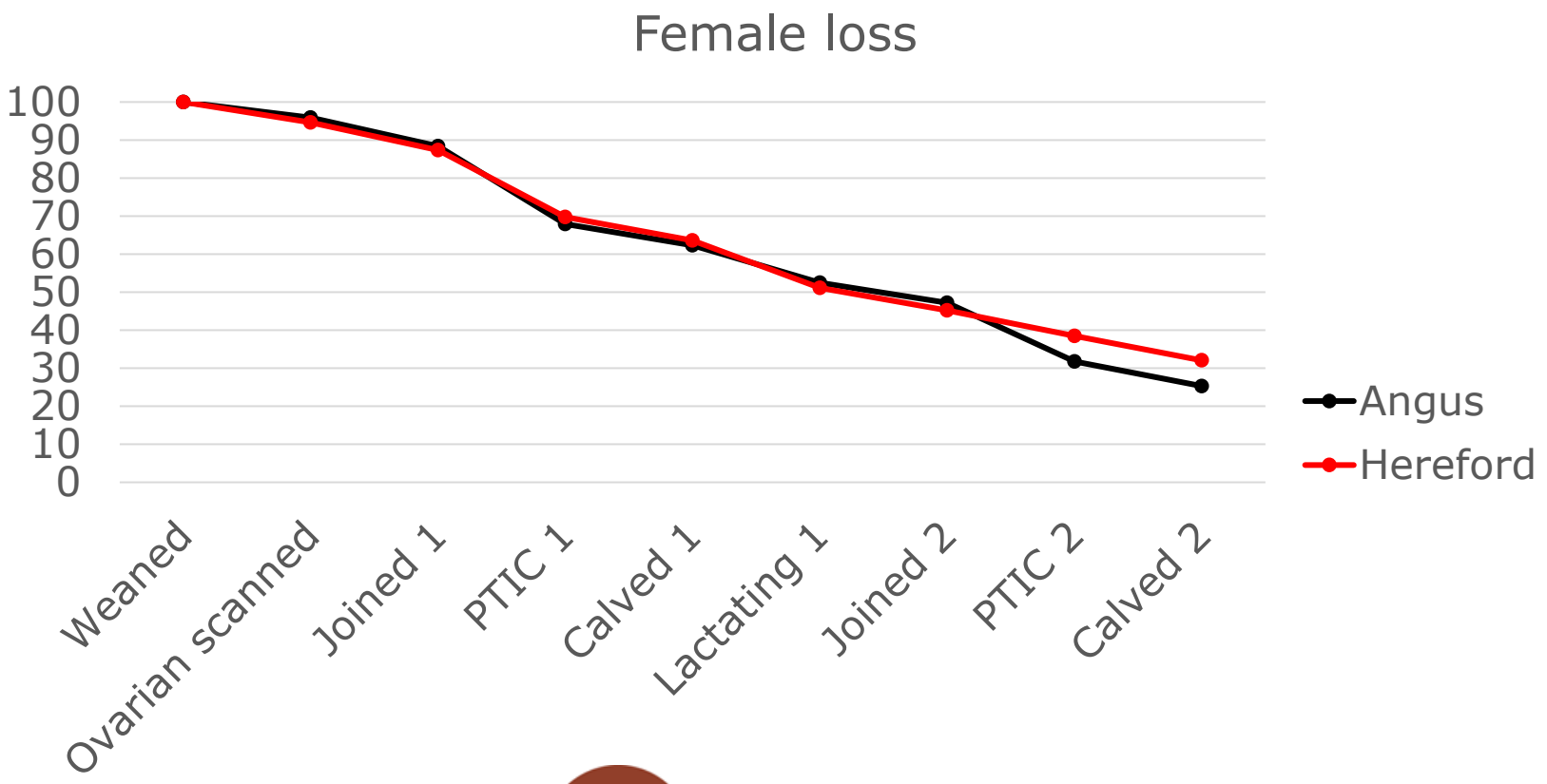
CRC BEEF



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HEREFORDS Australia

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Optimising heifer development and management to increase whole herd profit B.GBP.0038

14,229 heifers

25 cohorts

9 farms

4 states (SA, Tas, Vic, NSW)

2 breeds (Angus, Hereford)

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Weaner heifers

PTIC1

100

72%

72

28

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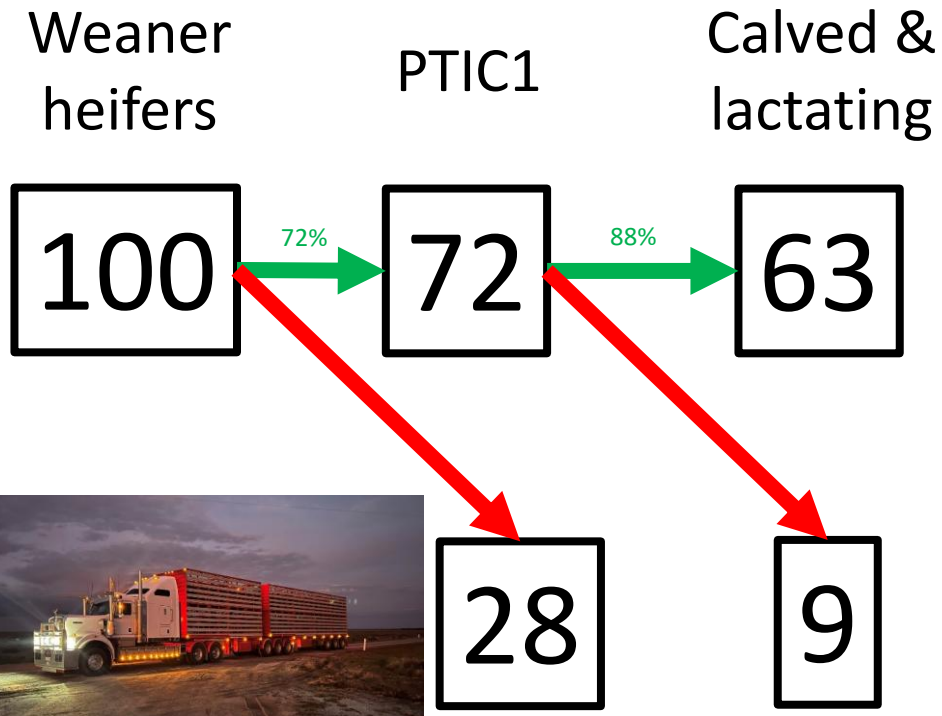

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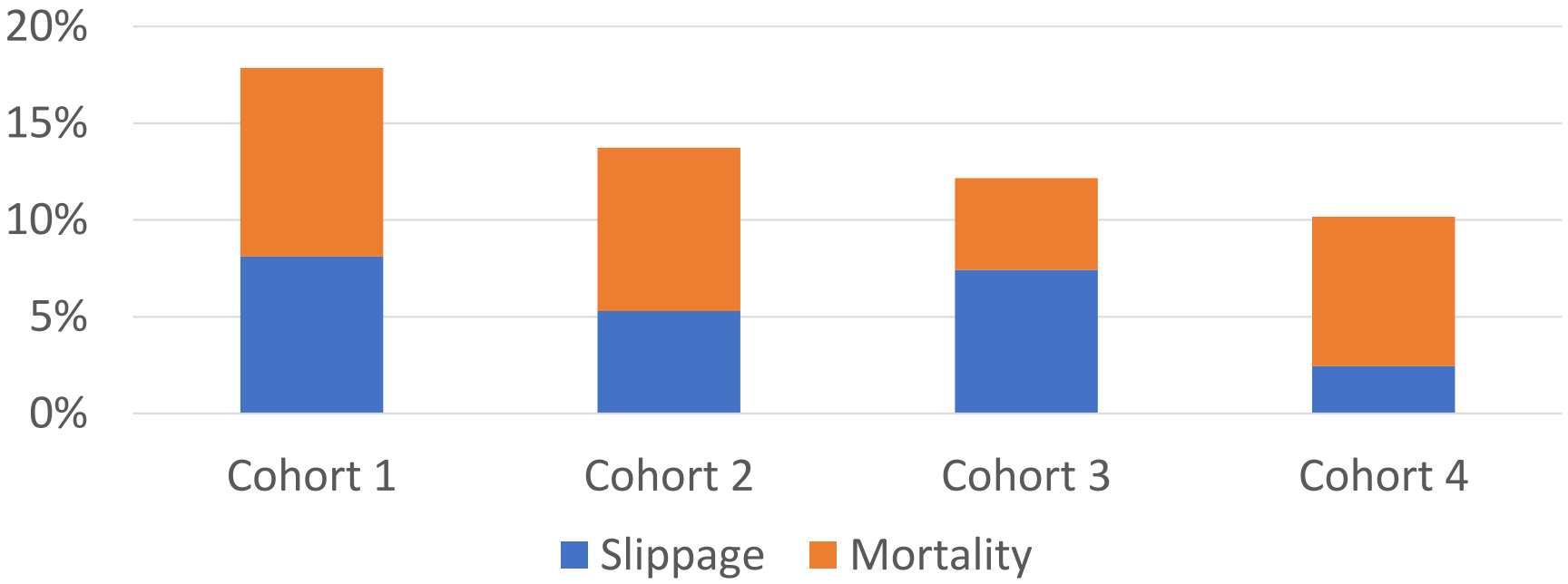
PTIC 6160, Slippage 344=5.6%, Mortality 531=7.1%



Slippage hard to record in large herd and likely more like Cohort 4

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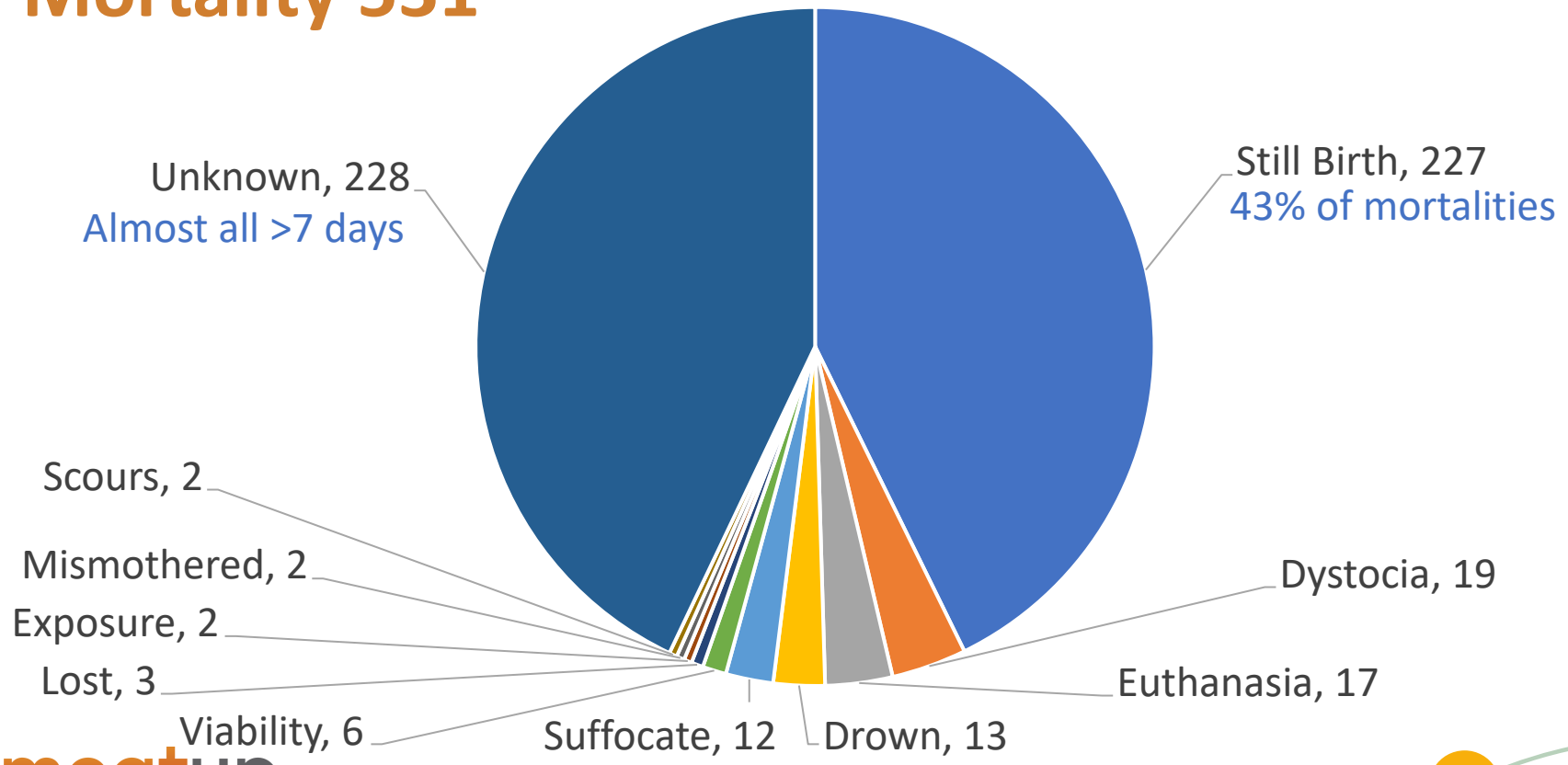
Mortality 531



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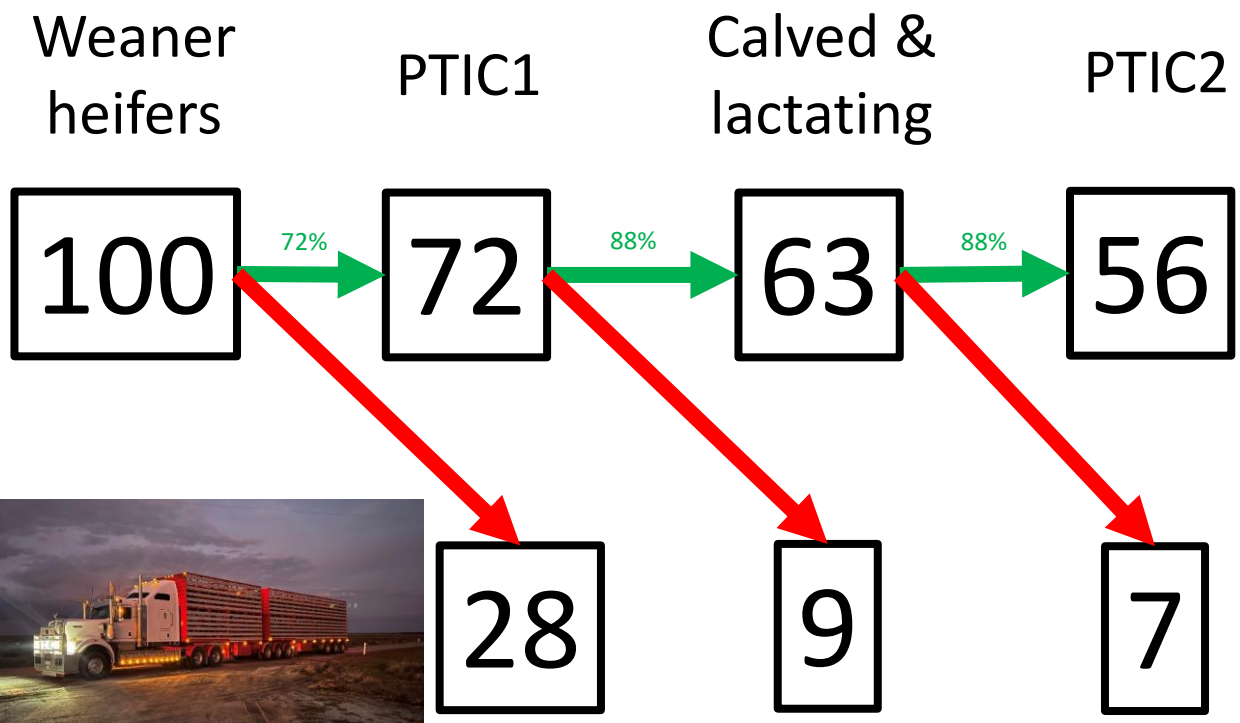
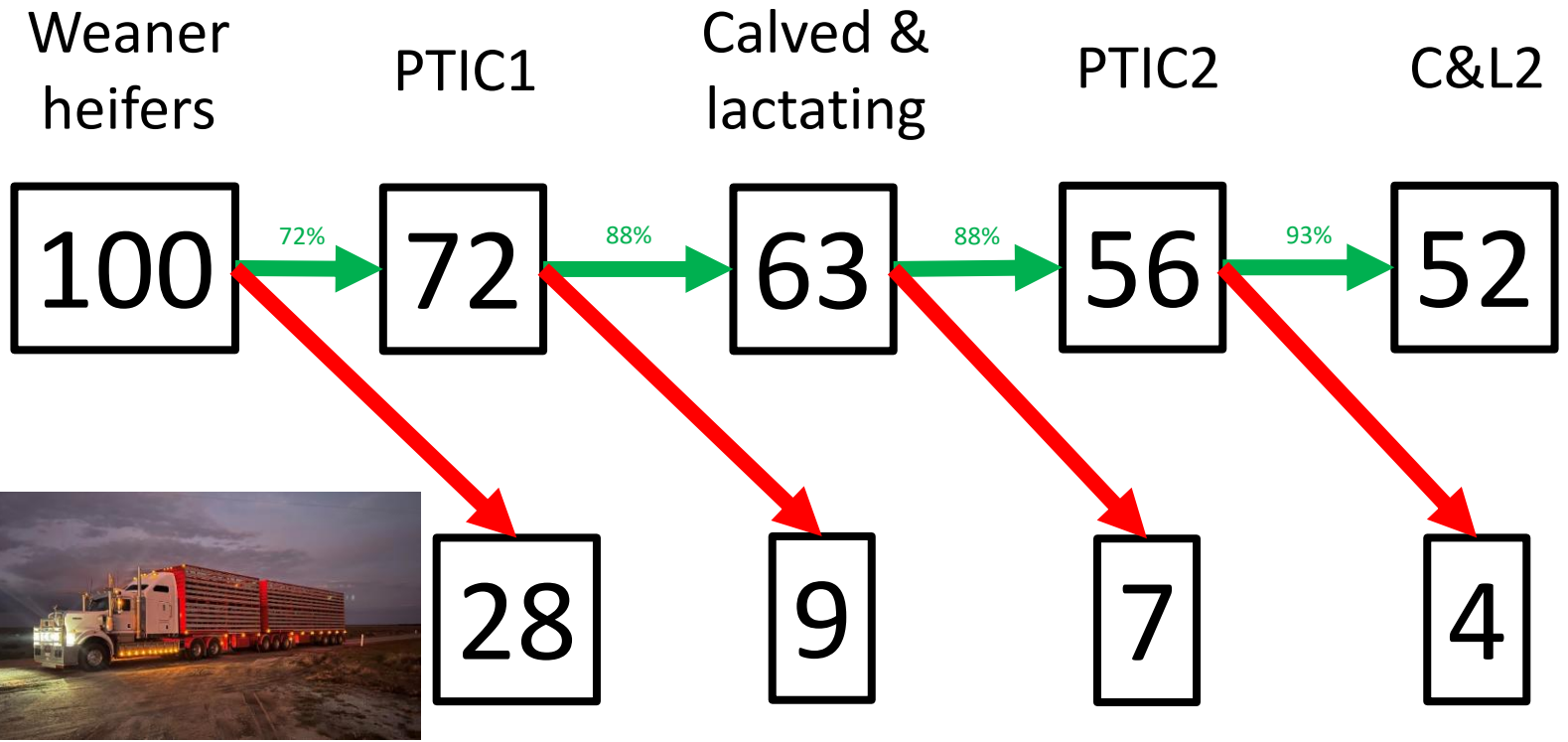


Wet And Pregnant Early



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Weaner heifers	PTIC1	Calved & lactating	PTIC2	C&L2	PTIC3
100	72	63	56	52	44
	28	9	7	4	8

72% 88% 88% 93% 85%

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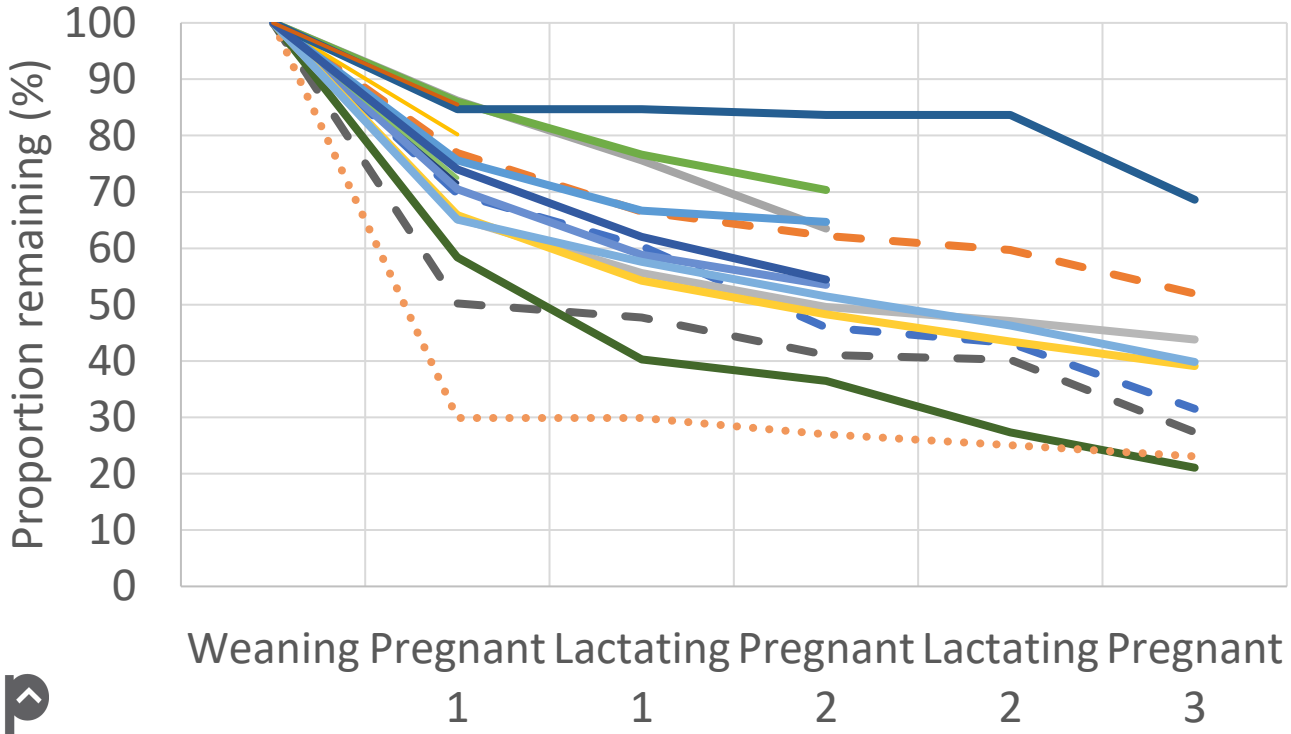
Drop out rates based on 6 week joining



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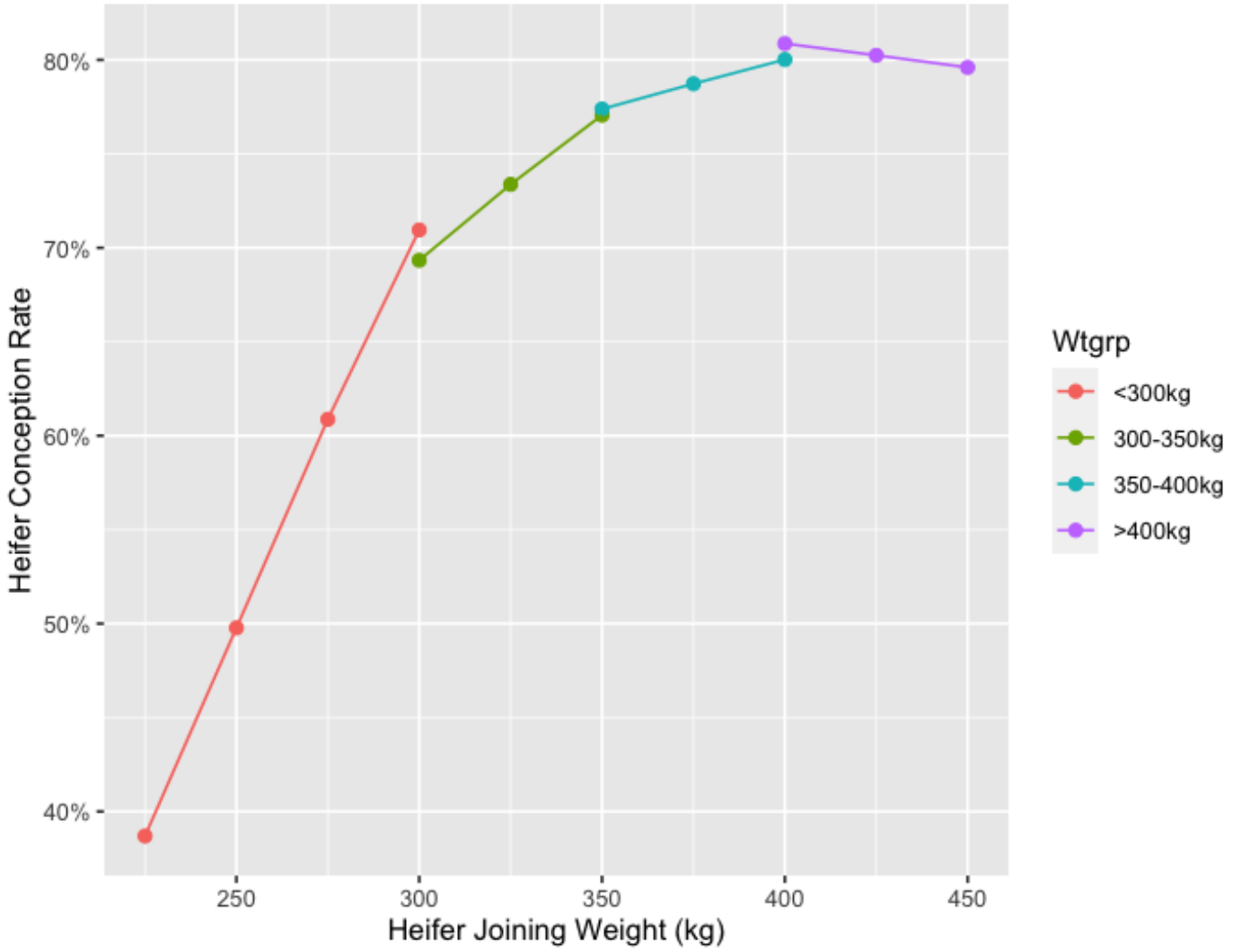
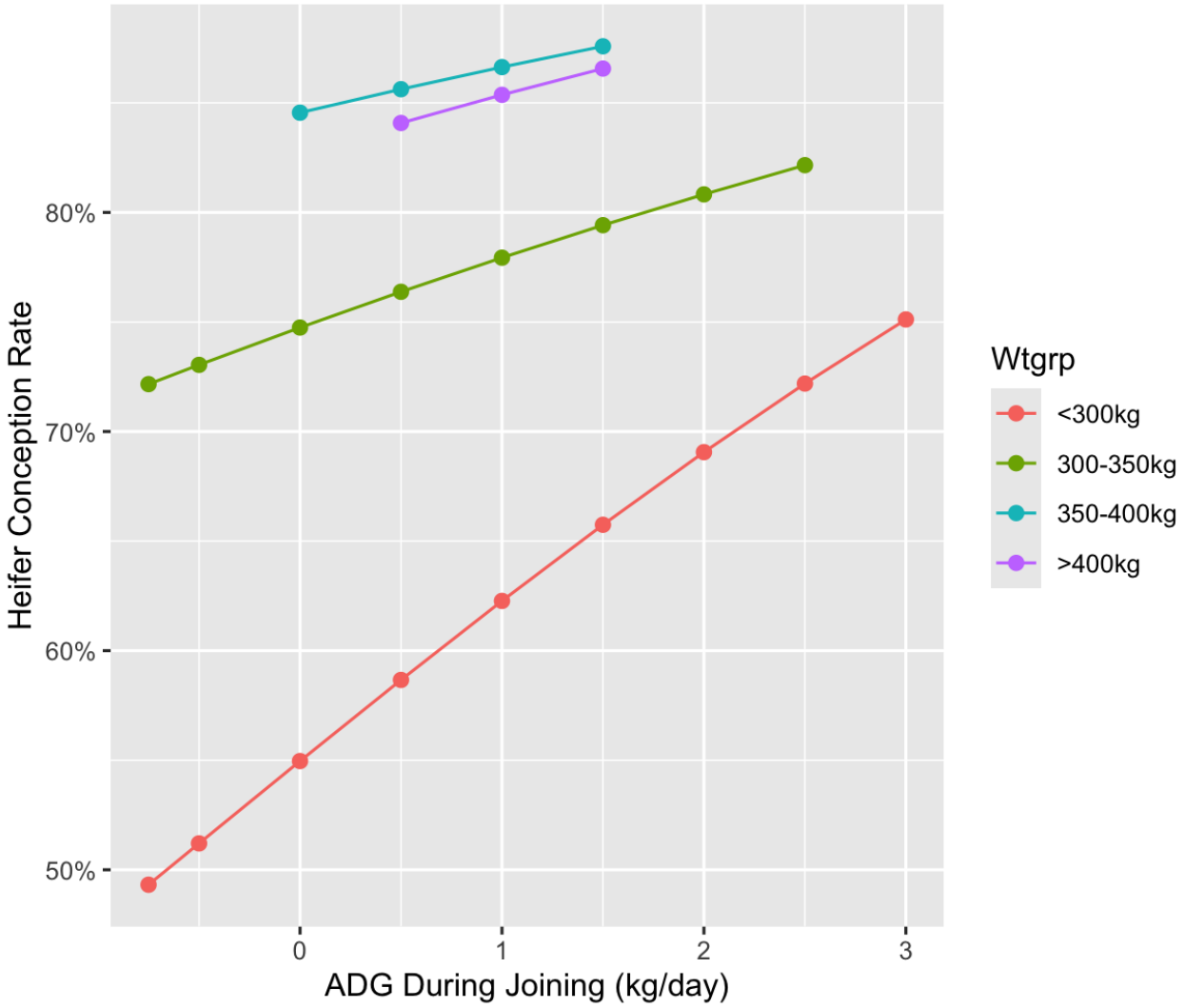
Weight


80%
70%
60%
50%
40%
Heifer Conception Rate
250
300
350
400
450
Heifer Joining Weight (kg)
Wtgrp
<300kg
300-350kg
350-400kg
>400kg

Gain


80%
70%
60%
50%
Heifer Conception Rate
0
1
2
3
ADG During Joining (kg/day)
Wtgrp
<300kg
300-350kg
350-400kg
>400kg

6 weeks later calves

- 30 kg lighter at weaning (155 vs 185 = 16%)
- 20 kg lighter carcasses (@7.50 = $150)

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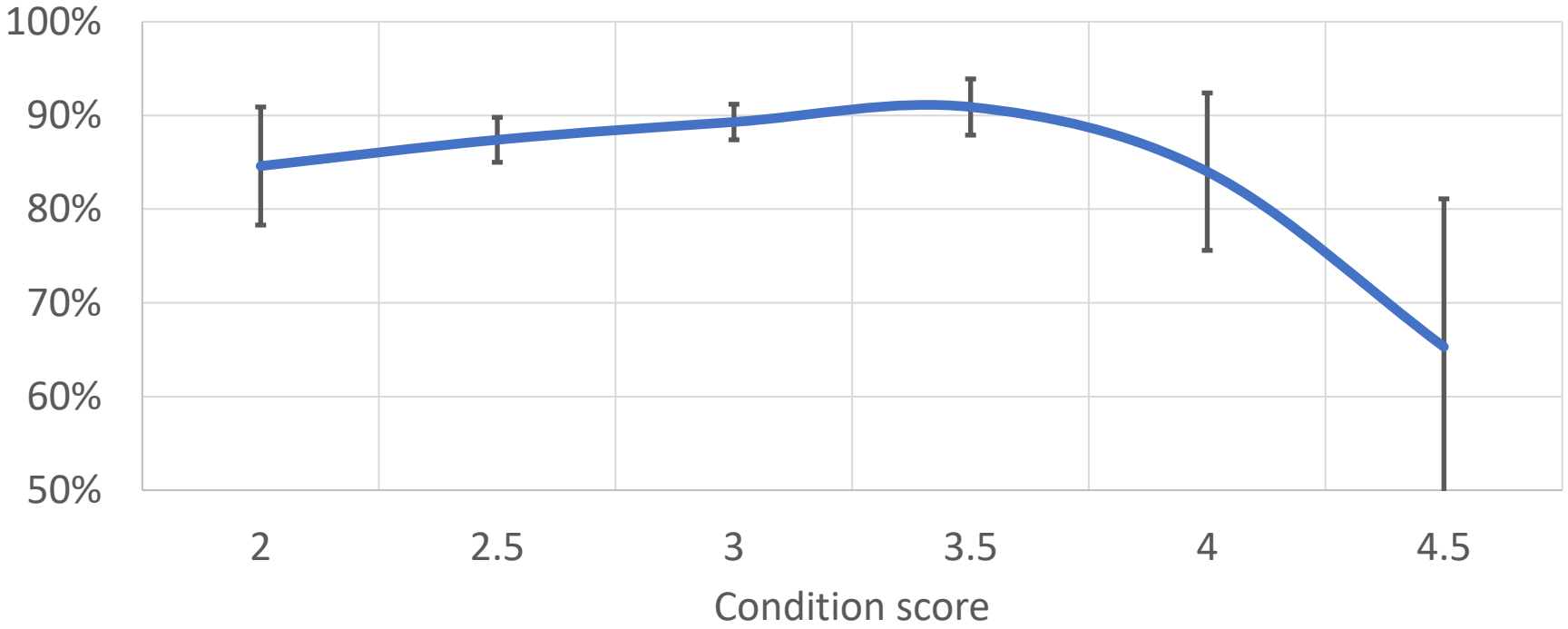
BCS effect on 6 week rebreeding preg. rates



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Take home messages – cows

- ✓ Productivity losses significant
- ✓ Winter joining heifers >350kg
- ✓ Spring joining heifers >300kg
- ✓ Grow well, calve in BCS3
- ✓ Young herd more resilient
- ✓ Over-join, fetal aging, sell surplus PTIC

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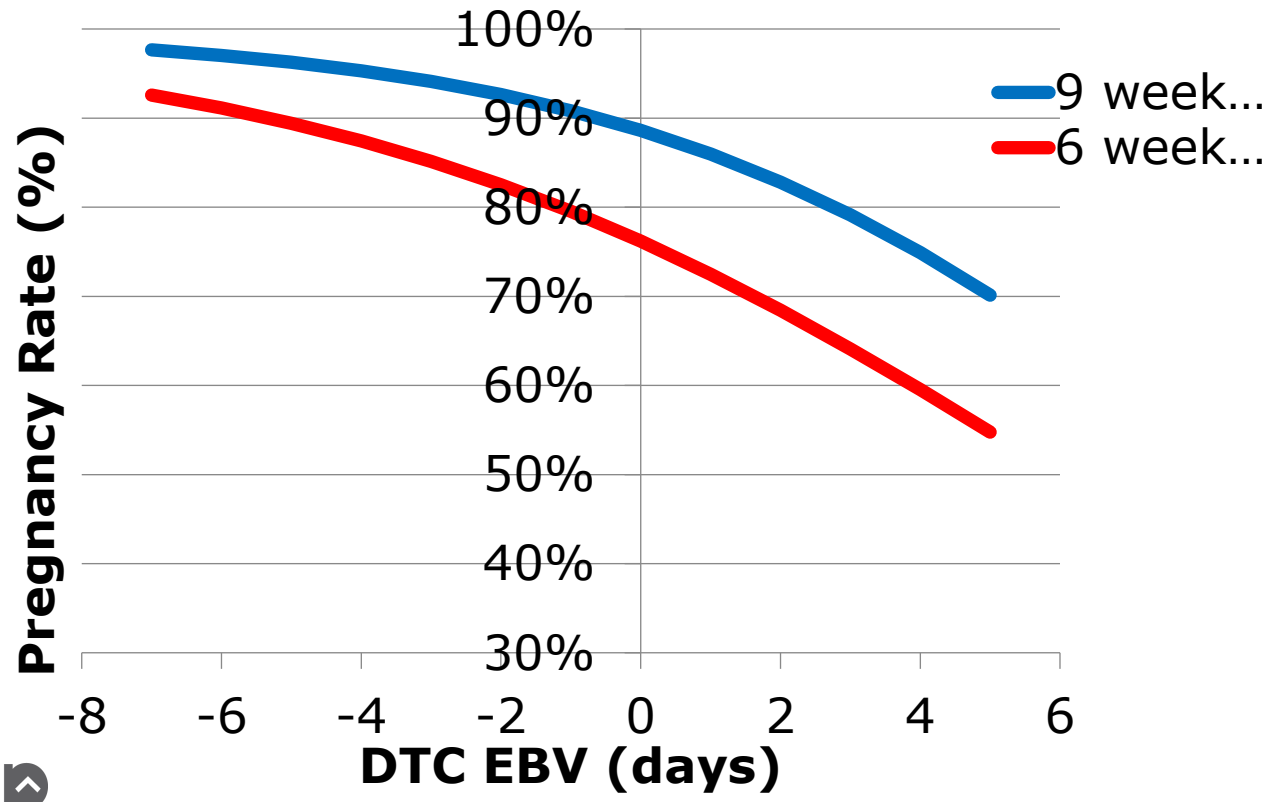
CRC – Relationship with Days to Calving EBV



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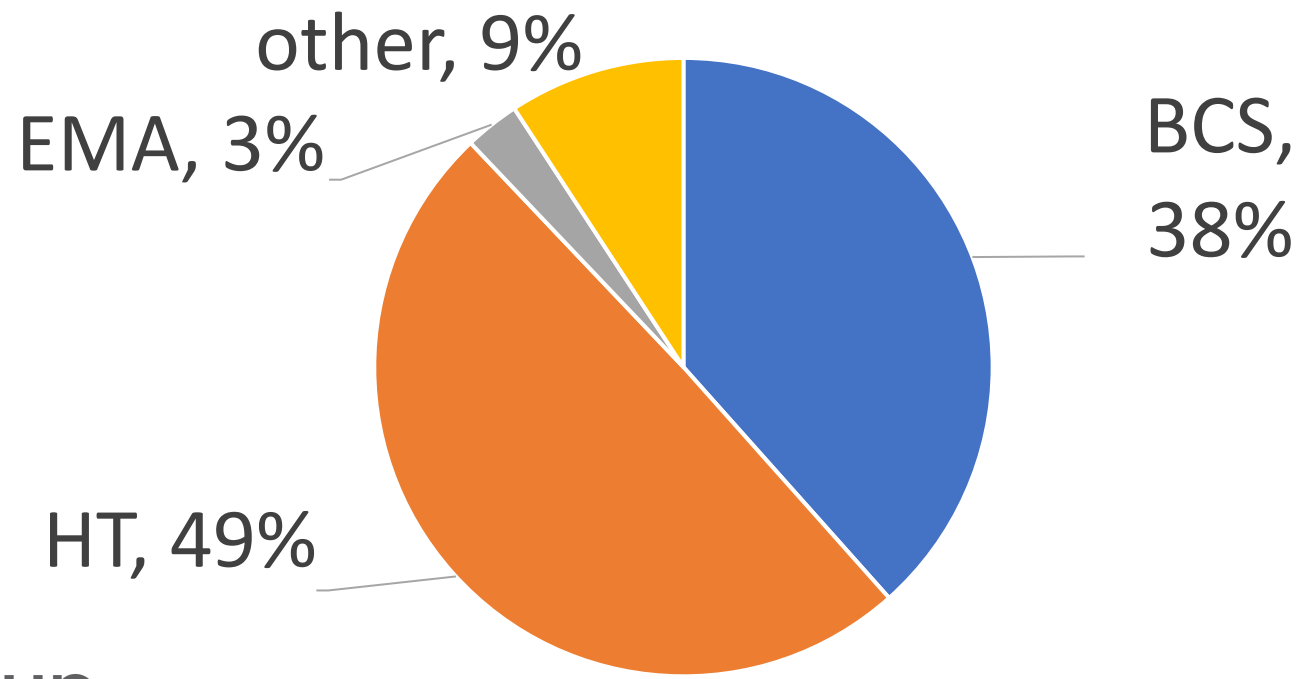
Genetic variation in cow weight is associated with …



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Take home messages – bull EBVs

Primary	Secondary
Calving ease	Scrotal size
Carcass weight	Mature cow weight
Days to calving	Fat depth
Body condition score	Muscle depth

g	EBV	CE Dir	CE Dtrs	GL	BWT	200	400	600	MCW	MBC	MCH	Milk	DTC	SS	DOC	NFI-F	CWT	EMA	RIB	P8	RBY	IMF	CLAW	ANGLE	LEG	$A	$
al	EBV	+1.5	+0.9	-10.0	+5.9	+57	+107	+147	+140	+0.42	+9.6	+21	-5.1	+4.3	+29	+0.44	+71	+12.8	-1.4	-1.6	+1.4	+3.6	+0.70	+0.72	+0.88	$244	
	(Acc)	(75%)	(70%)	(99%)	(99%)	(98%)	(98%)	(98%)	(96%)	(83%)	(89%)	(93%)	(61%)	(98%)	(99%)	(74%)	(90%)	(88%)	(88%)	(88%)	(82%)	(87%)	(98%)	(98%)	(97%)	(-)	
	Perc	62	75	2	88	27	16	8	8	15	23	23	43	4	21	72	45	4	80	73	6	23	22	6	13	14	

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PDS Project – what did we do?

- 19 beef businesses (18,600 breeding cows) Limestone coast region of SA
- 2020 drop (R): monitored from weaning through to second calving in 2023.
- 11 property visits

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Collaboration – technical expertise

- Research staff, Vets, Livestock consultants
- Access to up-to-date research and technical information

MFMG

Producer Demonstration Site

THE UNIVERSITY of ADELAIDE

Elke Hocking Consulting

millicent veterinary clinic

TLC TAILORED LIVESTOCK CONSULTING

T PRANCE RURAL CONSULTING

Schulz LIVESTOCK

Apiam animal health

zoetis

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Combined producer heifer data

Reference weight average 660kg

Year of drop	Joining year (join length)	Av. lwt 1st joining	% SRW	Heifer conception %	Calving month & year	% calves born alive to cows calved	% assisted at calving	Heifer mortality %	Weaning % (to joined)
2018 (P)	2019	349kg	53%	76%	2020	93%	6.4%	1.3%	68%
2019 (Q)	2020	353kg	53%	80%	2021	90%	6.6%	0.4%	59%
2020 (R)	2021	372kg BCS 3.3	56%	81%	2022	93%	8%	0.8%	67%
2021 (S)	2022	380kg	58%	84%	2023	94%	4%	0.6%	74%

Monitor mob 2020 drop (R) heifer preg rates

- Autumn calving – 80%
- Winter calving – 79%
- Spring calving – 86%

2021 drop (S) heifers:

- Autumn calving – **85%**
- Winter calving – 80%
- Spring calving – 86%

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Combined producer second calving data

Reference weight average 660kg

Year of drop	Joining year (join length)	Av. lwt 2nd joining & BCS	% SRW	Cow conception %	Calving month & year	% calves born alive to cows calved	% assisted at calving	Cow mortality %	Weaning % (to joined)
2017 (N)	2019	518kg	80%	88%	2020	96%	1%	1.3%	82%
2018 (P)	2020	534kg	82%	88%	2021	94%	1%	0.5%	85%
2019 (Q)	2021	550kg	85%	88%	2022	98%	0.7%	0%	85%
2020 (R)	2022	523kg	85%	92%	2023	98%	0%	0.6%	89%

- Despite most producers wanting to lift conception rates in second calving cows, baseline data indicates it was already good
- Calves born alive to cows was high PTIC 90-94% (heifers) and 94-98% (second calvers).

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Profitable & Resilient Southern Beef Herds

- Long-term learning pathway for southern beef producers – MBfP 2.0
- Upskill 200 producers and reach up to 100,000 breeding cows
- Stacked extension and adoption program that has a proven impact
- Cow health team focused on quantifying issues and lifting performance
- 20 livestock advisors upskilled (including new entrants)
- Greater capacity of producers and advisors to better manage risk and make more informed decisions
- Legacy supported learning package with a community of trained advisors

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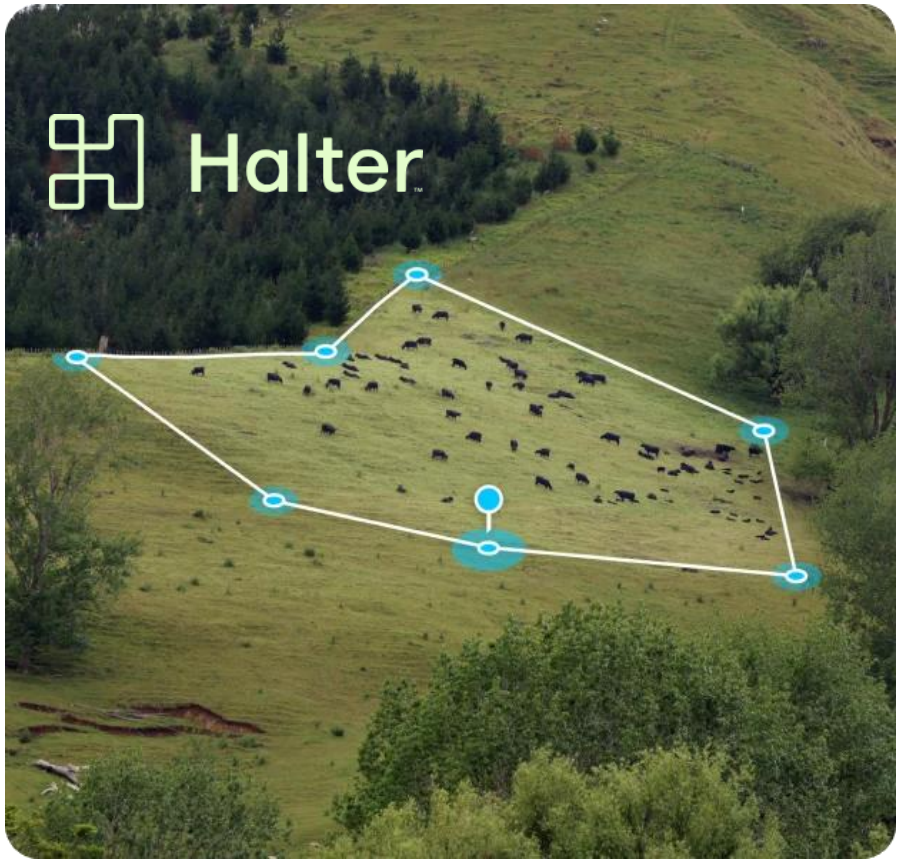
Profitable & Resilient Southern Beef Herds



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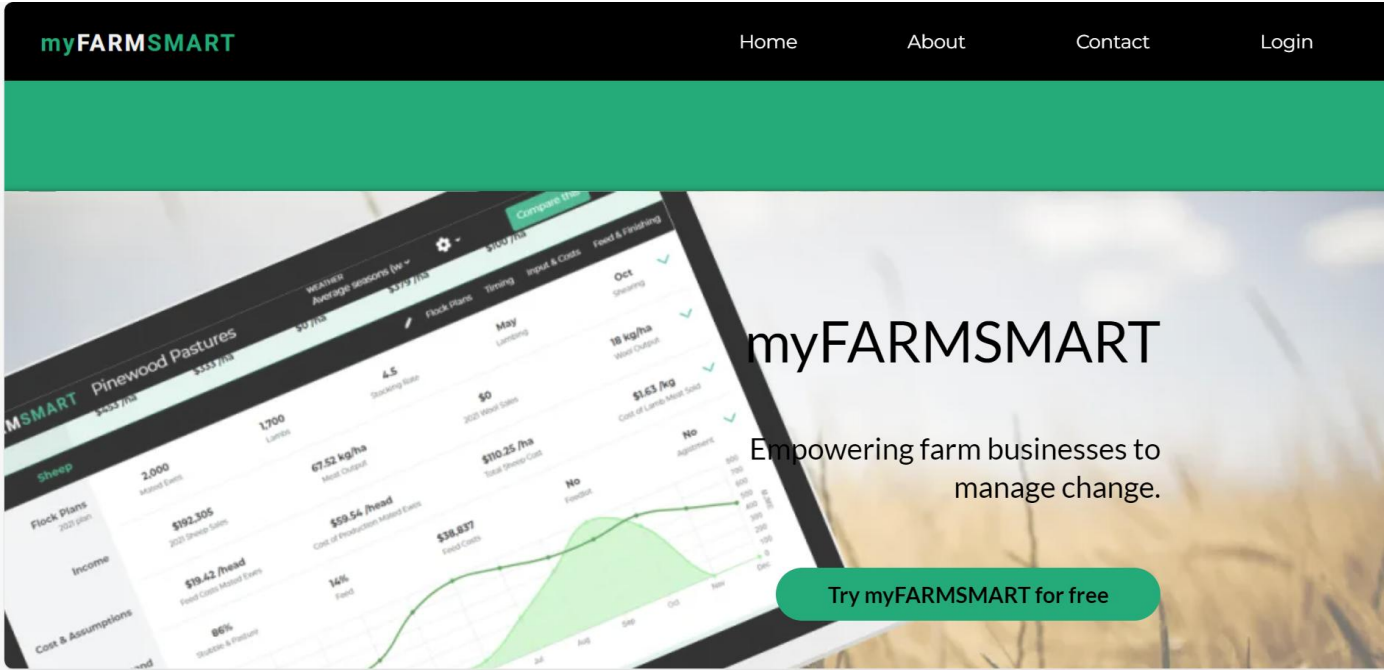
WA Calving time and business planning



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Virtual Farm Tour – Addressing the Autumn feed gap

John Kidman

Nick Clarke

Todd Woodard

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Lunch

60 minutes

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Moneyball for sheep

James Starling

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Feeding through lambing

Sam Clothier

Toby Hassell

Deb Scammell

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Sam Clothier

Business: GW & CJ Clothier and Son's

Farming: 800ha at Woolumbool

Enterprise: Sheep, trade cattle and laying hens

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Toby Hassell

Business: Piccaninny

Farming: 1100ha near Beachport

Enterprise: Beef and Sheep

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Questions?

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Take home messages

- Prevent ewes being hungry
- Look at nutritional requirements
- Look at balance of nutrition
- Different feeding methods work for different people

Pathways for on-farm reductions in carbon emissions

Dr. Karen Christie-Whitehead

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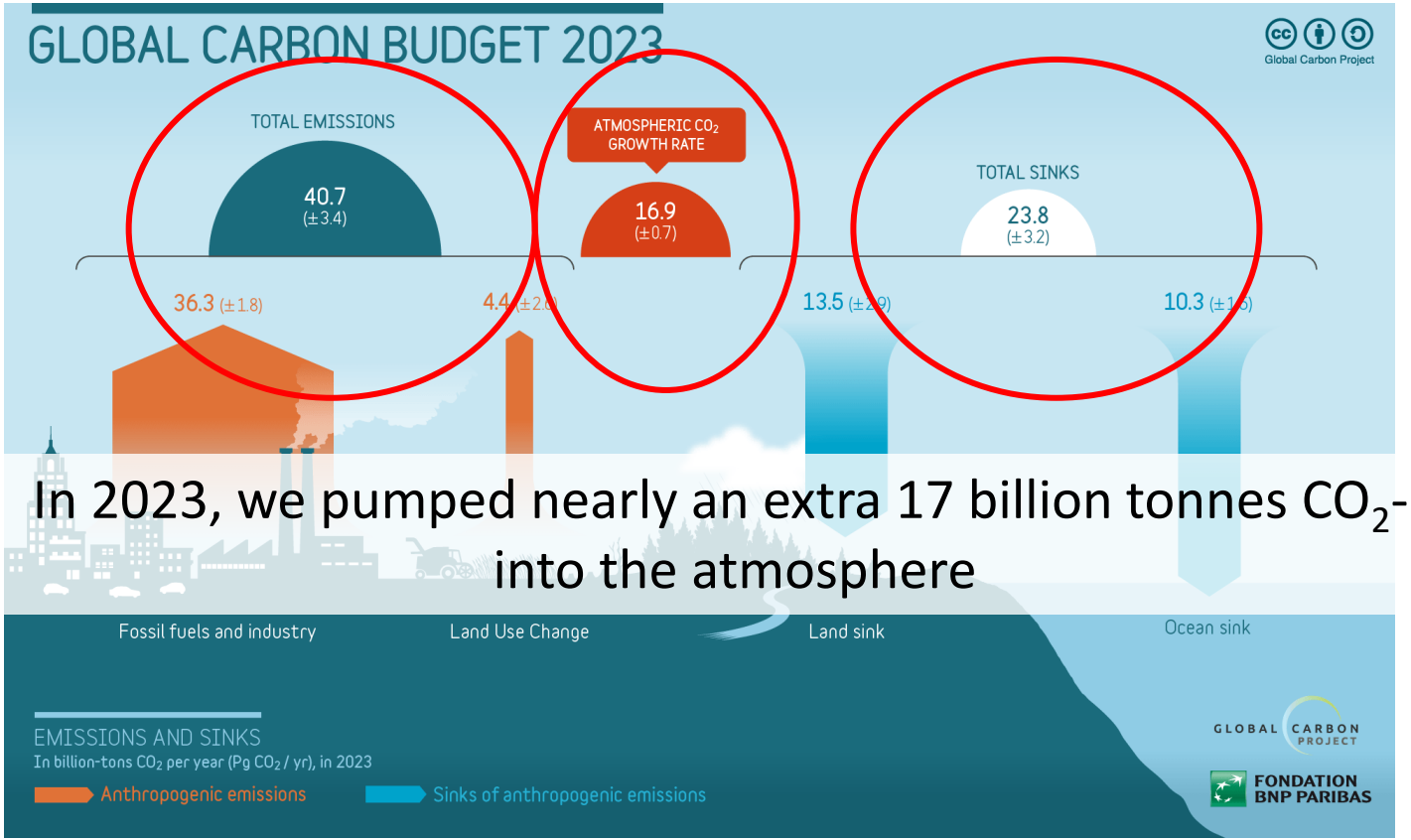
Why do we need to reduce GHG emissions?

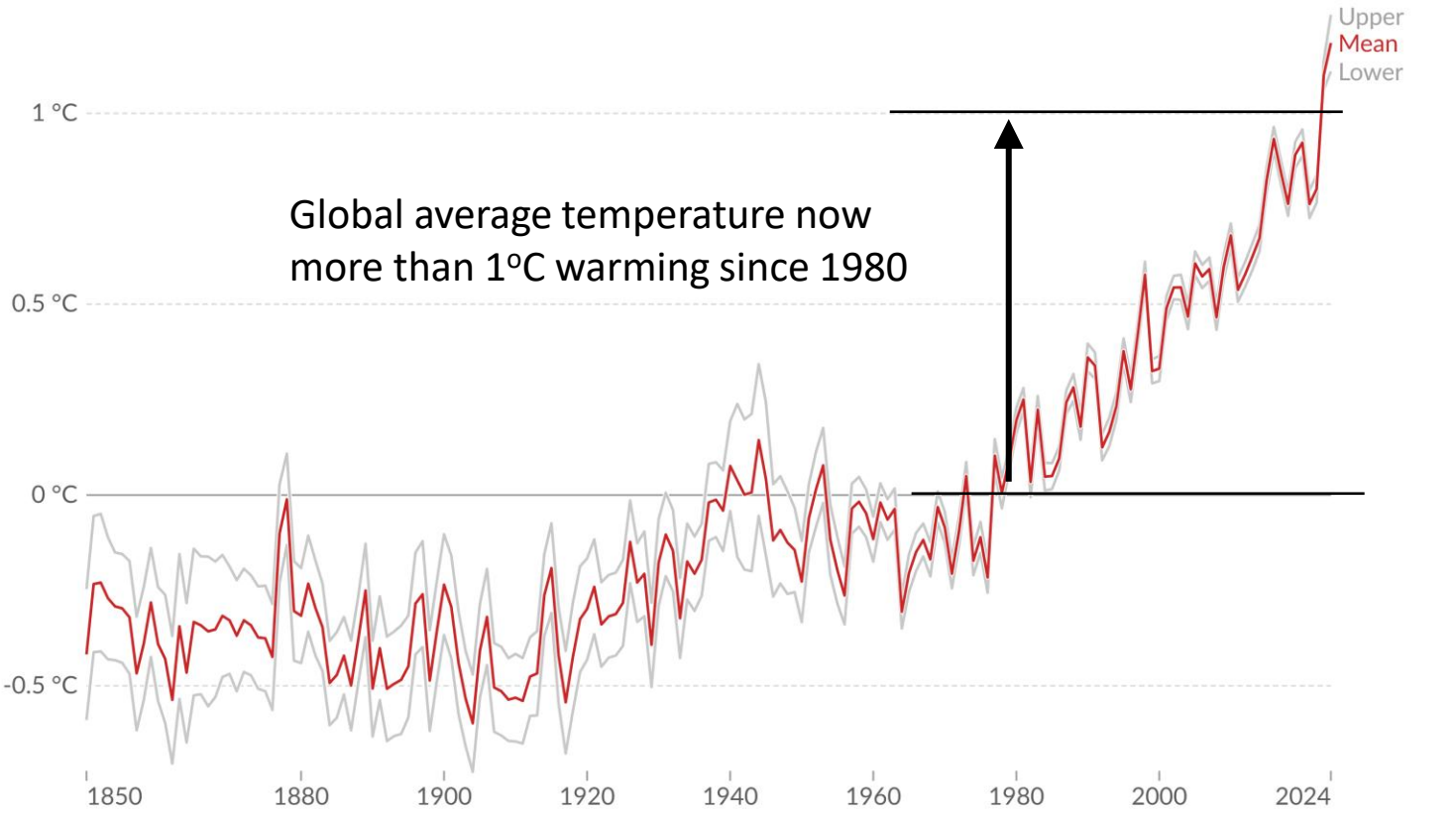


In 2023, we pumped nearly an extra 17 billion tonnes CO_2-e into the atmosphere

Average temperature anomaly, Global

Our World in Data

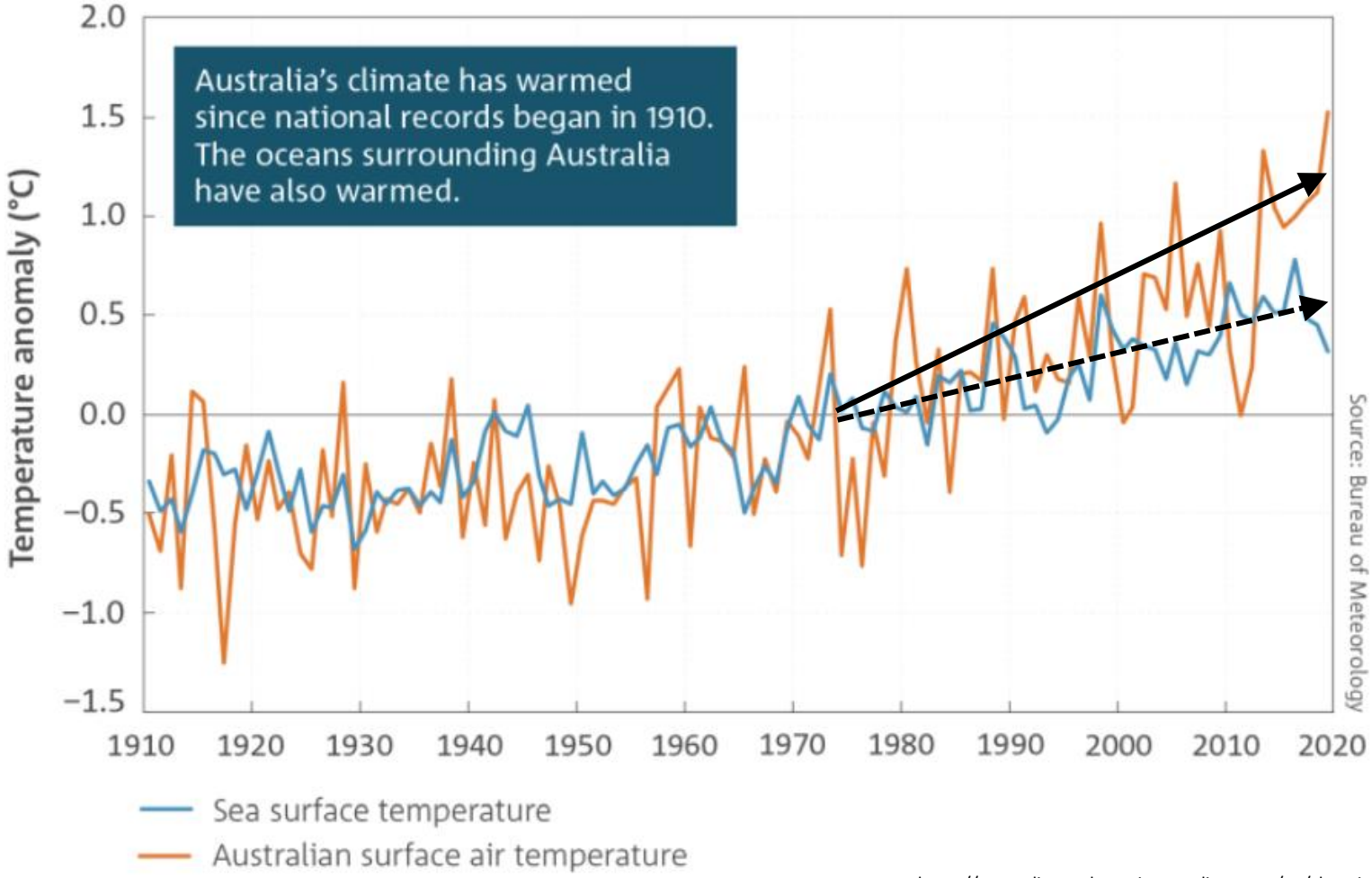
Global average land-sea temperature anomaly relative to the 1961-1990 average temperature baseline.



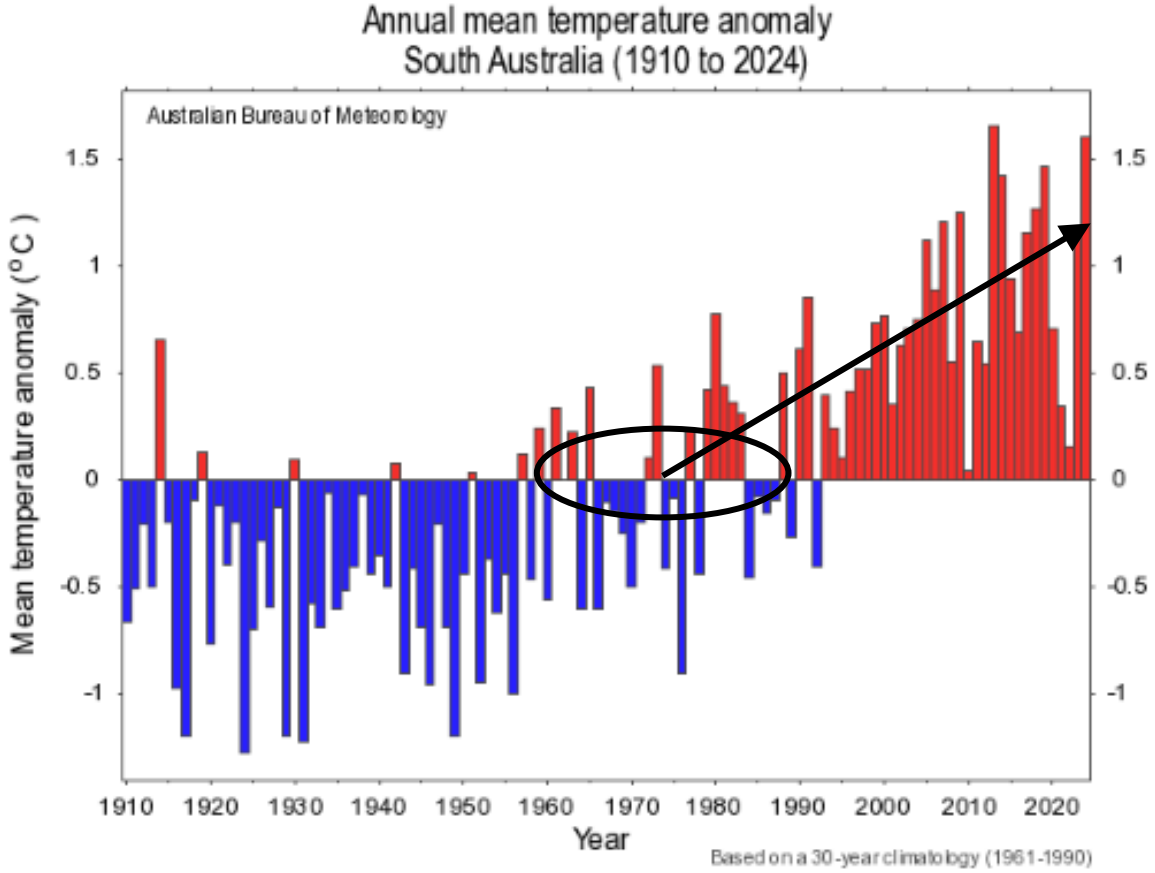
Data source: Met Office Hadley Centre (2024)

OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

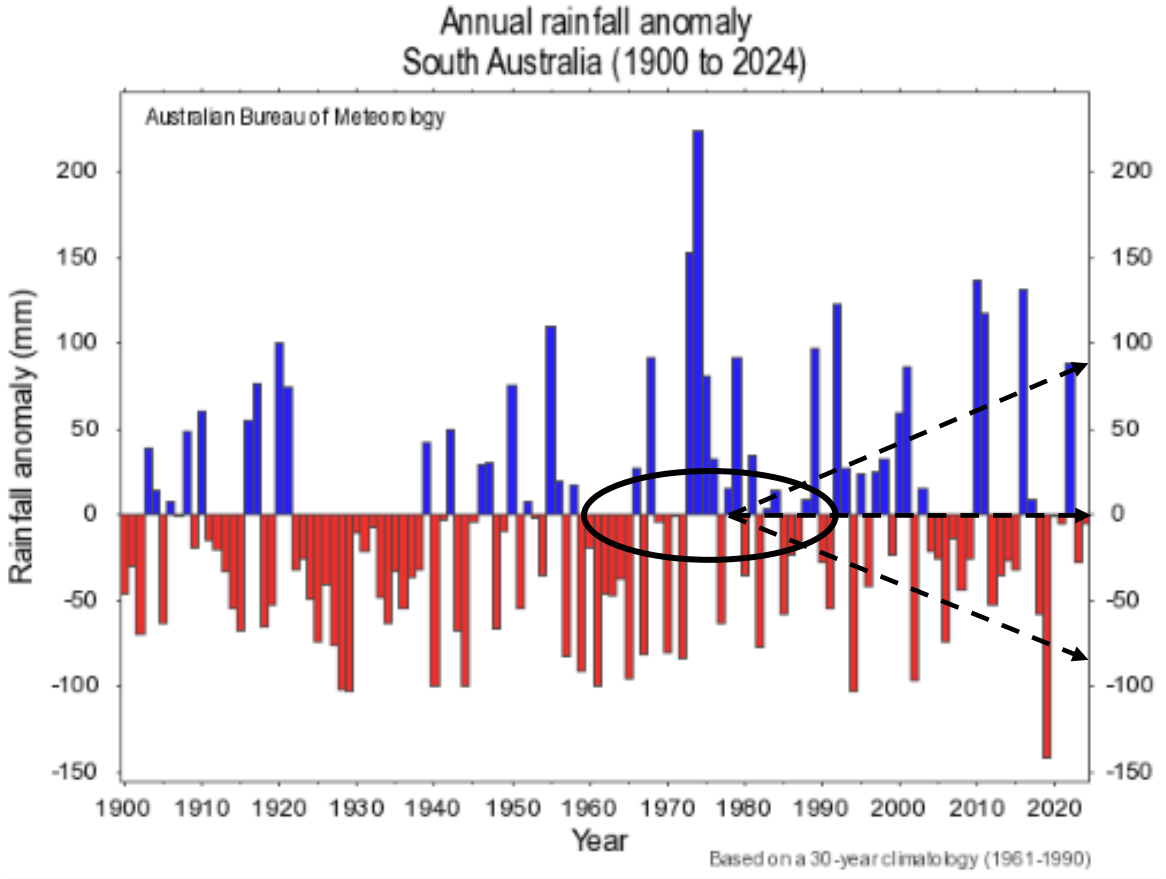
Note: The gray lines represent the upper and lower bounds of the 95% confidence interval.



https://www.climatechangeinaustralia.gov.au/en/changing-climate/climate-trends/australian-trends/



http://www.bom.gov.au/cgi-bin/climate/change/timeseries.cgi?graph=tmean&area=sa&season=0112&ave_yr=0&ave_period=6190



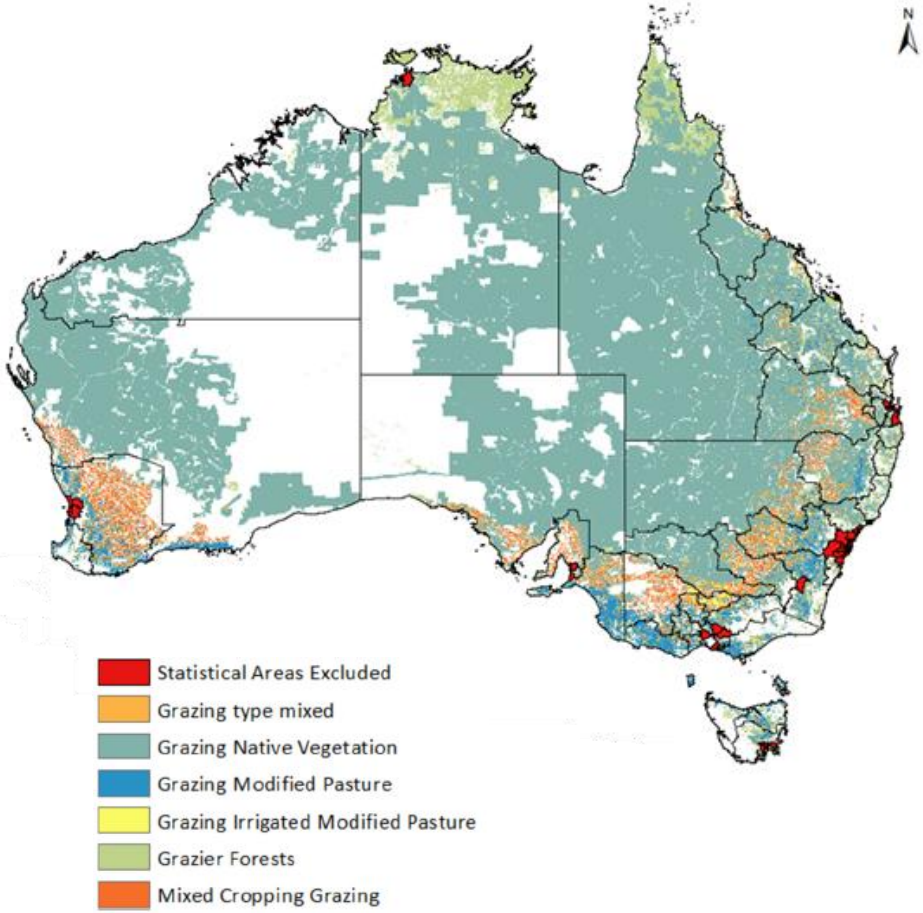
http://www.bom.gov.au/cgi-bin/climate/change/timeseries.cgi?graph=tmean&area=sa&season=0112&ave_yr=0&ave_period=6190

Why do we need to reduce GHG emissions?

- Greenhouse gas emissions are lost “opportunities”
- Methane represents a lost energy source that could be rediverted into product
- Optimising key inputs such as nitrogen-based fertilisers to reduce nitrous oxide and carbon dioxide emissions
- Maximising stock productivity
- Loss of tree carbon -> animal welfare (shade/shelter) for your stock, habitat for native animals, vegetation biodiversity, aesthetics
- Loss of soil carbon -> lower nutrients, lower water-holding capacity
- Access to markets, social licence, risk of being ‘taxed’ for export products, price premiums, bank loans etc

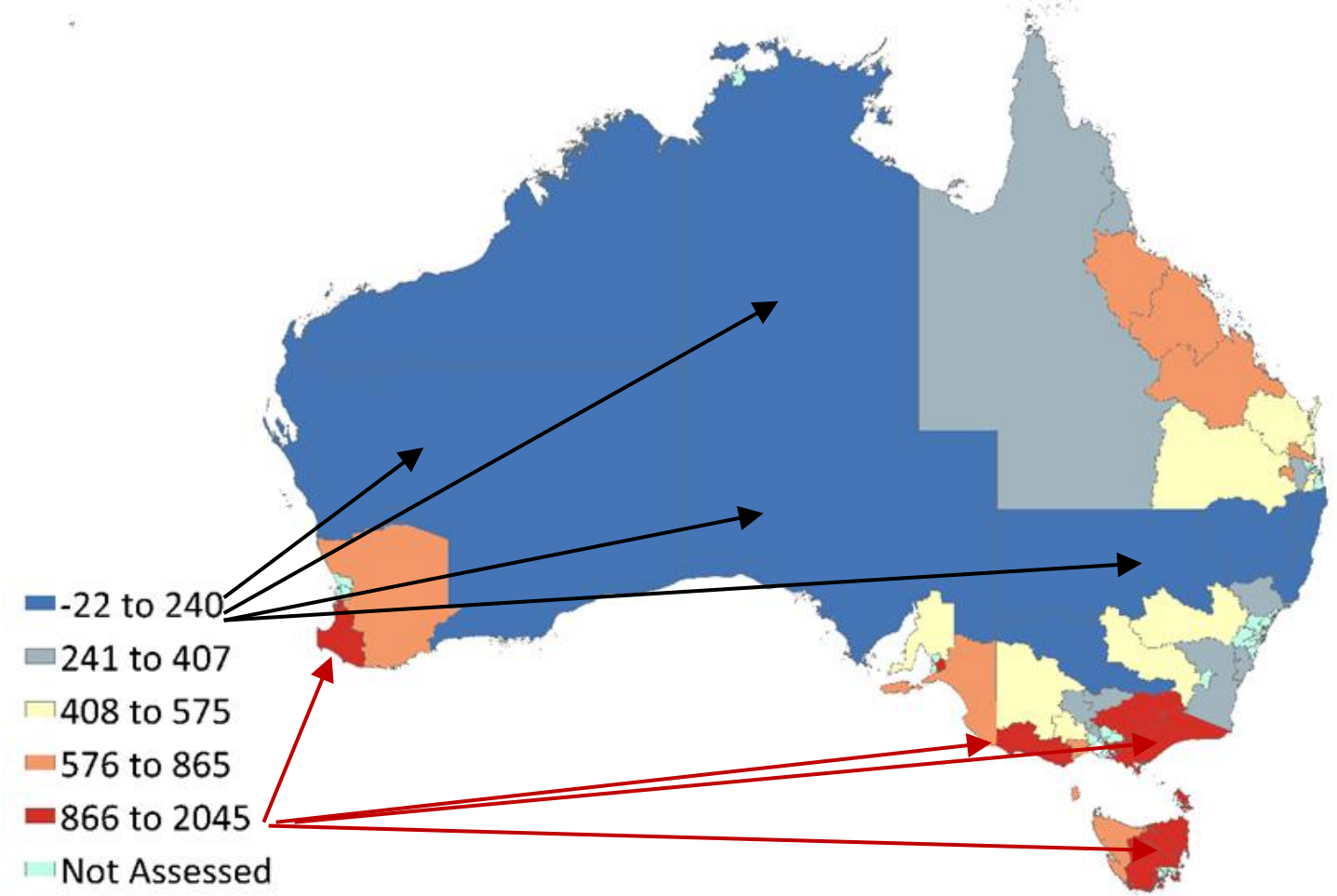
Is the livestock sector *en route* to net zero?

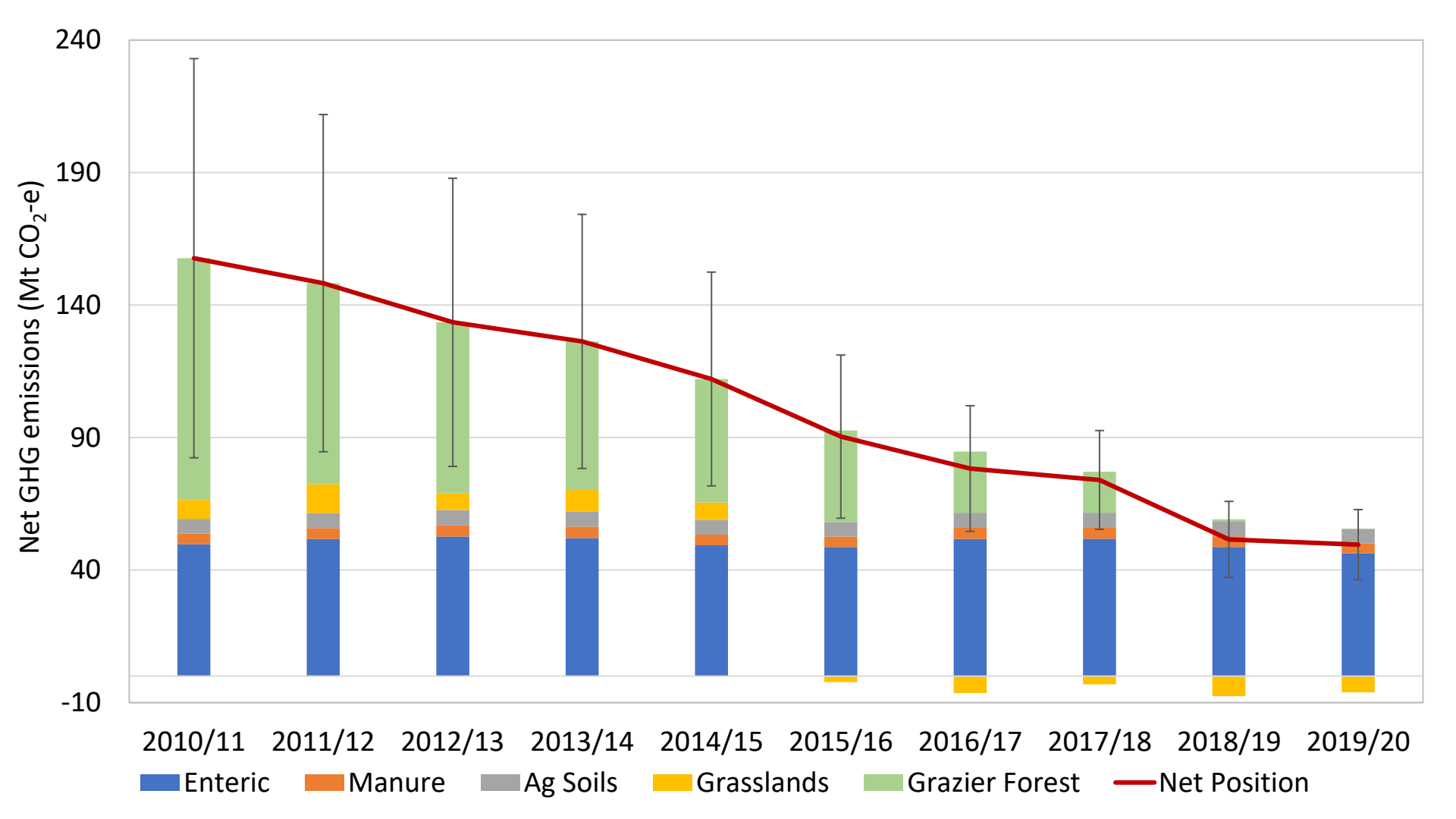
- 46 statistical (SLA4) areas examined
- 99.5% of Australia's red meat enteric methane emissions
- Estimated livestock/soils emissions and grasslands emissions/sinks from national inventory data (**net source**)
- Estimated changes in tree vegetation carbon sequestration using FLINTpro (**net sink (*or source if being lost)***)
- Difference is **net emissions**

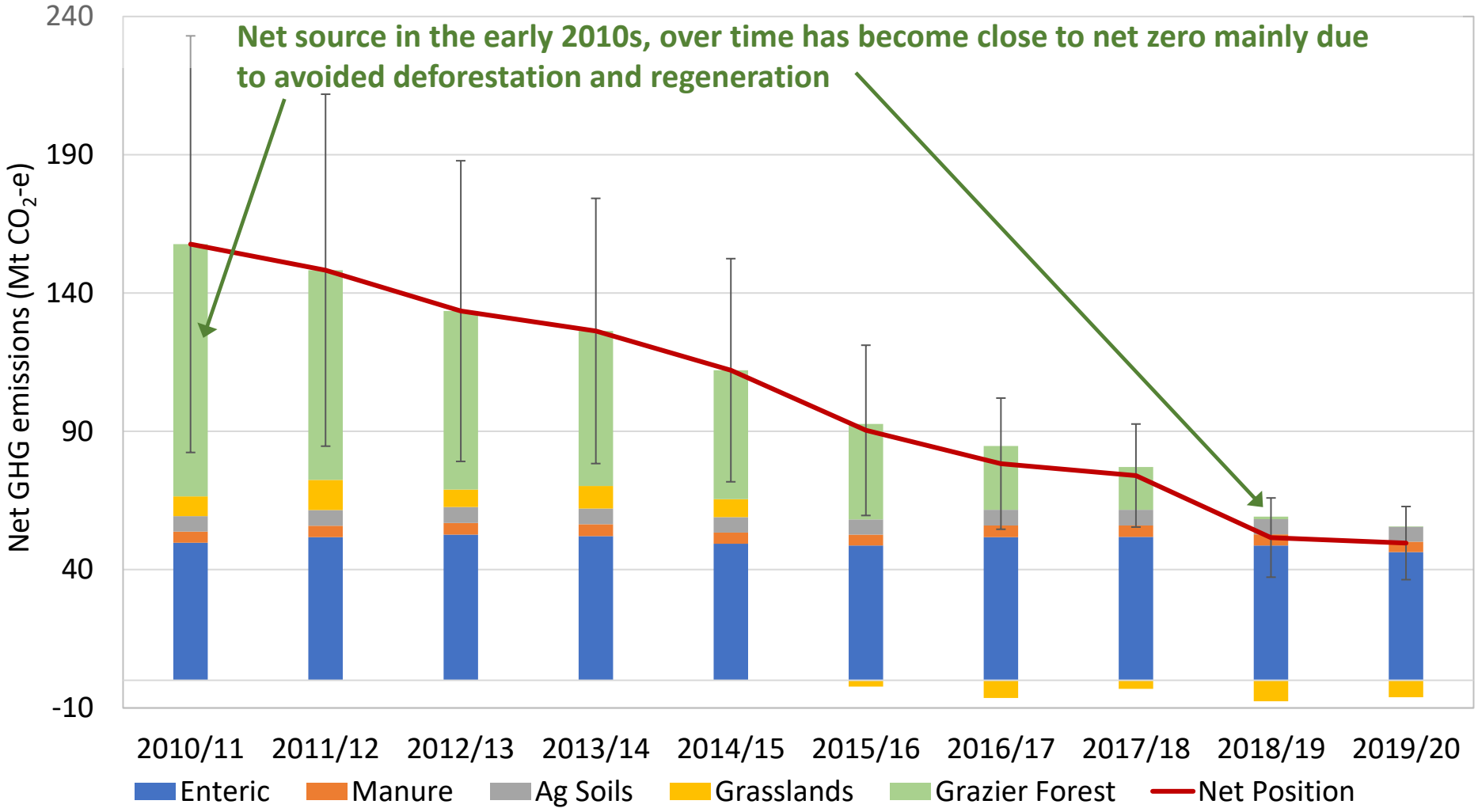


Bowen Butchart et al (2024)

Average net emissions per hectare (2010-20)




240
190
140
90
40
-10
Net GHG emissions (Mt CO_2-e)
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
Enteric
Manure
Ag Soils
Grasslands
Grazier Forest
Net Position


Net source in the early 2010s, over time has become close to net zero mainly due to avoided deforestation and regeneration
240
190
140
90
40
-10
Net GHG emissions (Mt CO_2-e)
2010/11
2011/12
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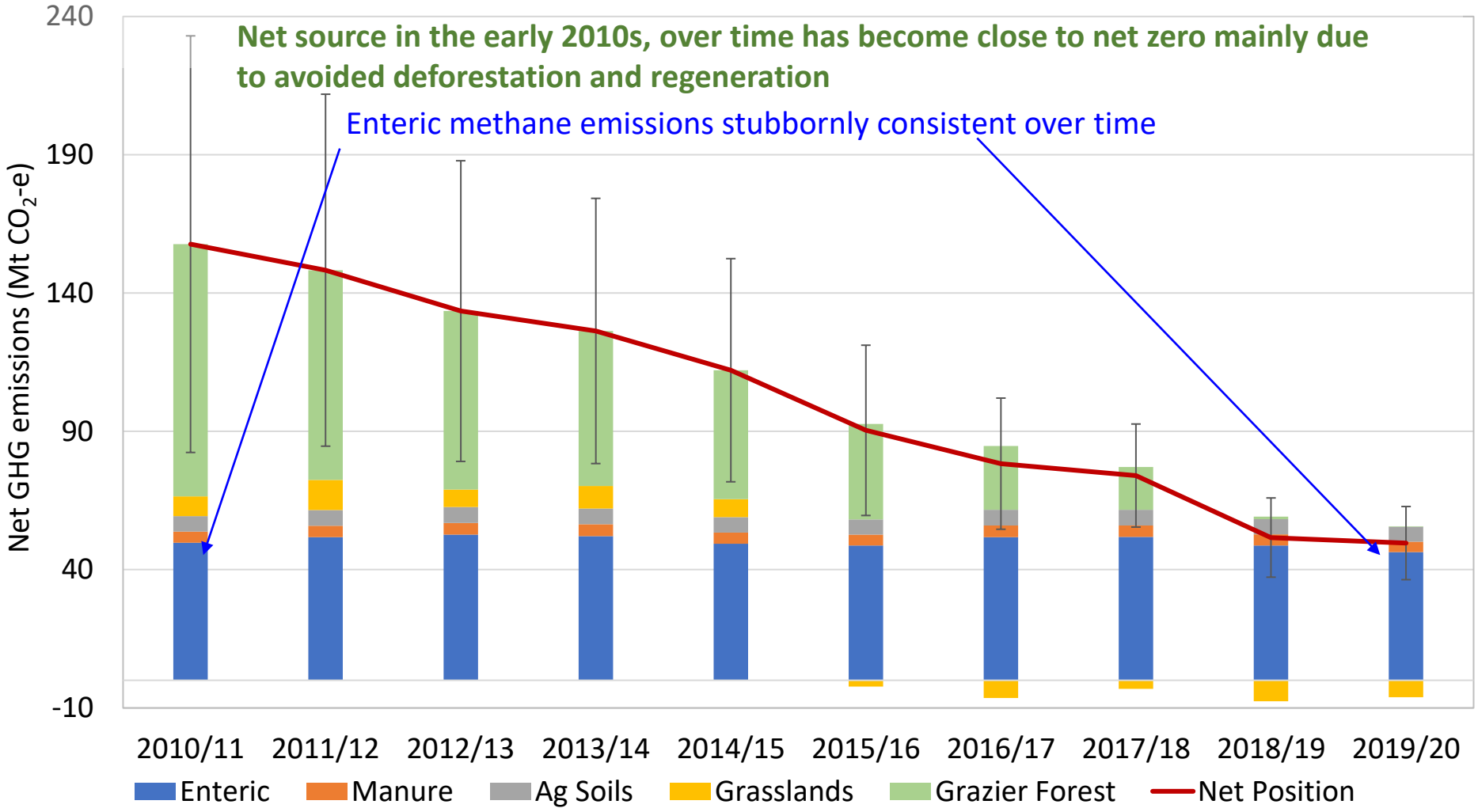
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Enteric methane emissions stubbornly consistent over time
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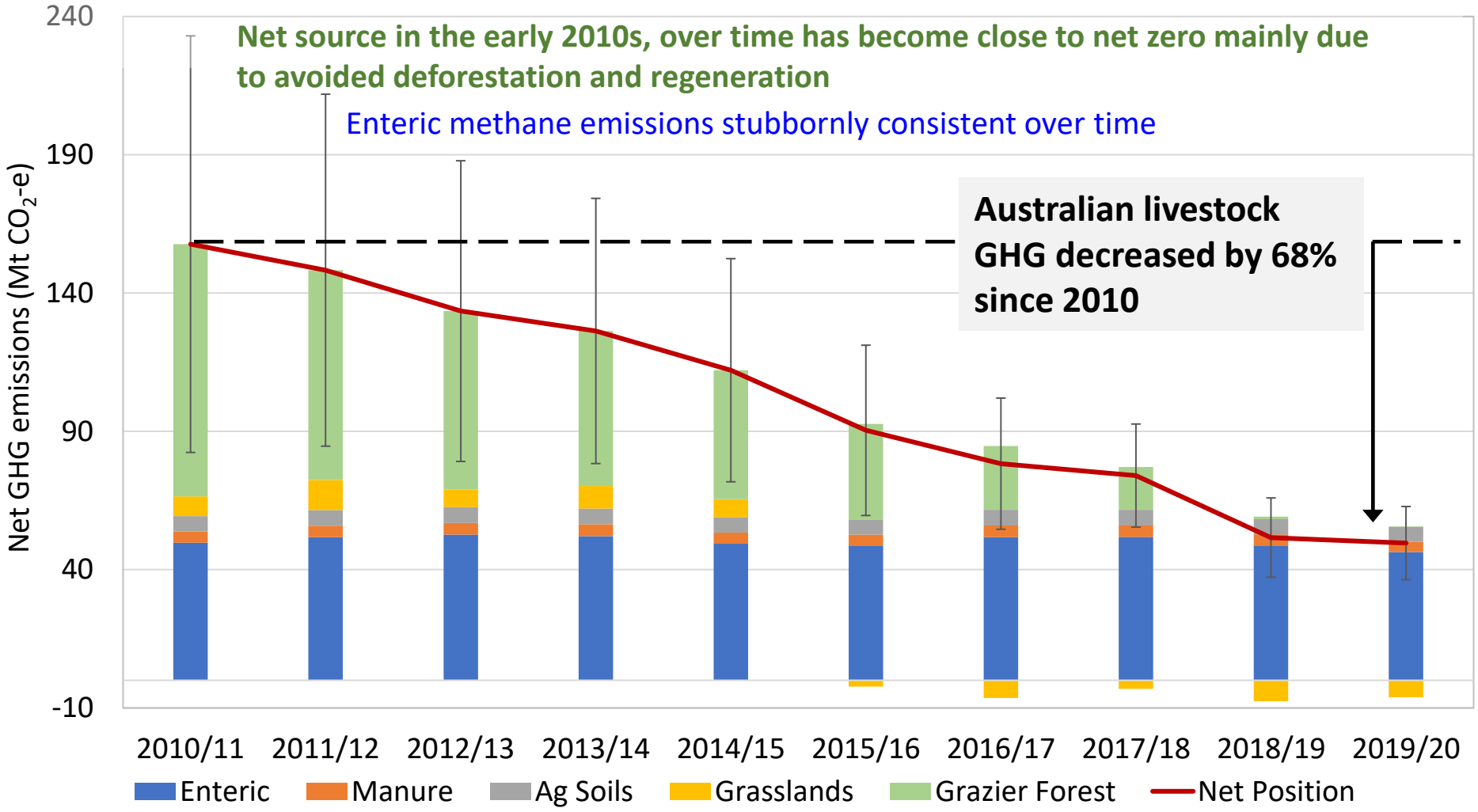
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Enteric methane emissions stubbornly consistent over time
Australian livestock GHG decreased by 68% since 2010
Net GHG emissions (Mt CO_2-e)
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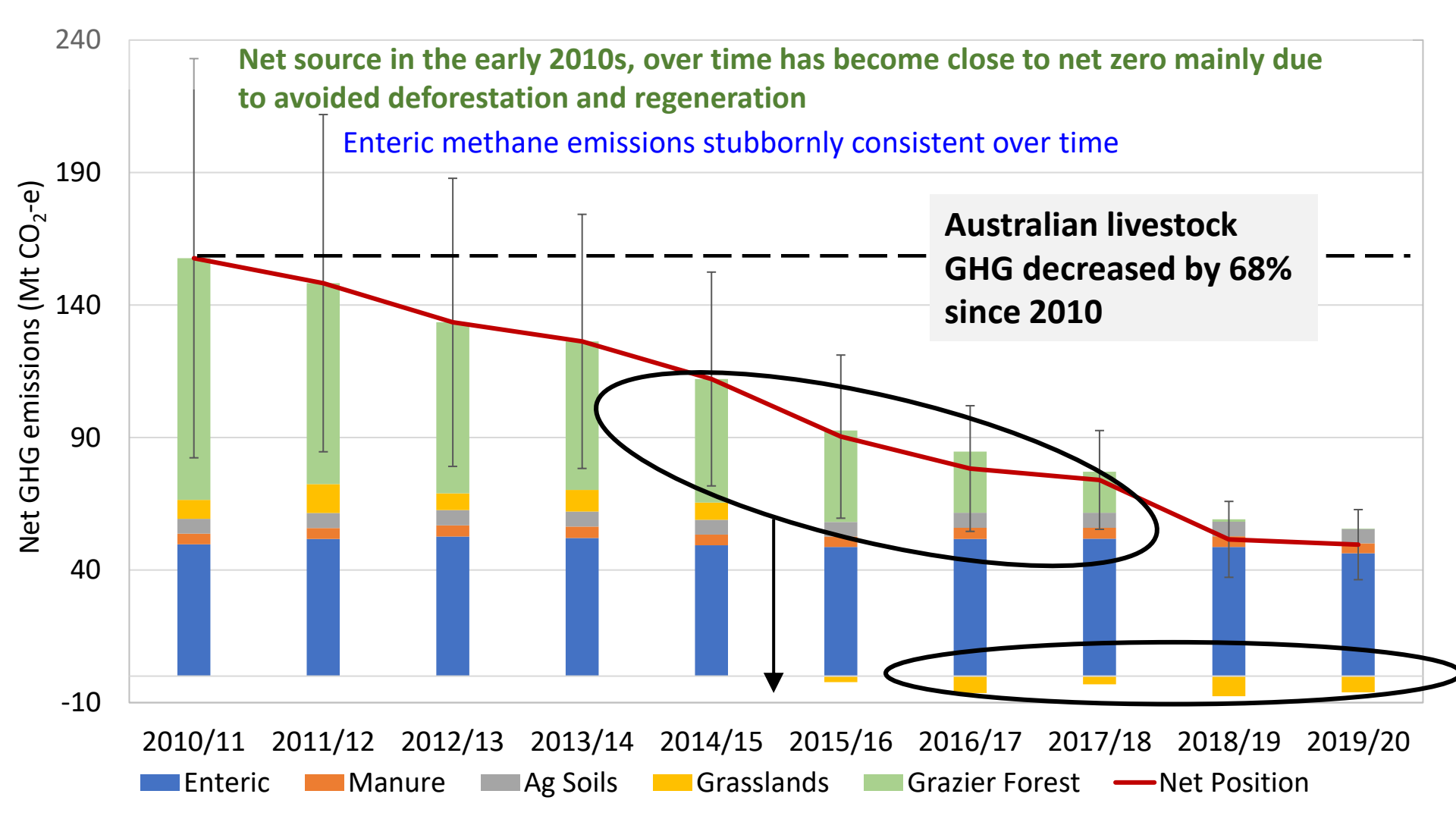
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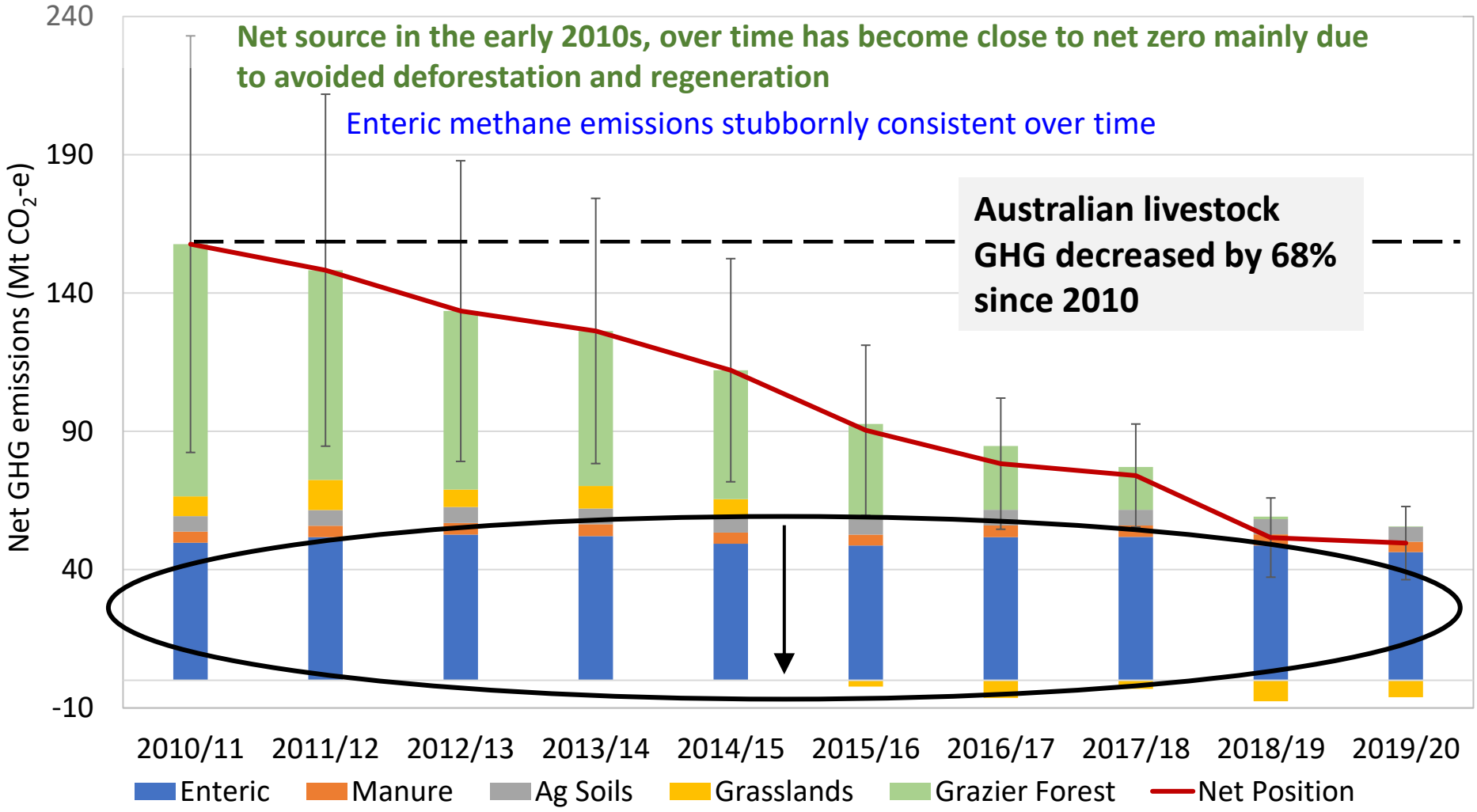
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Grazier Forest
Net Position

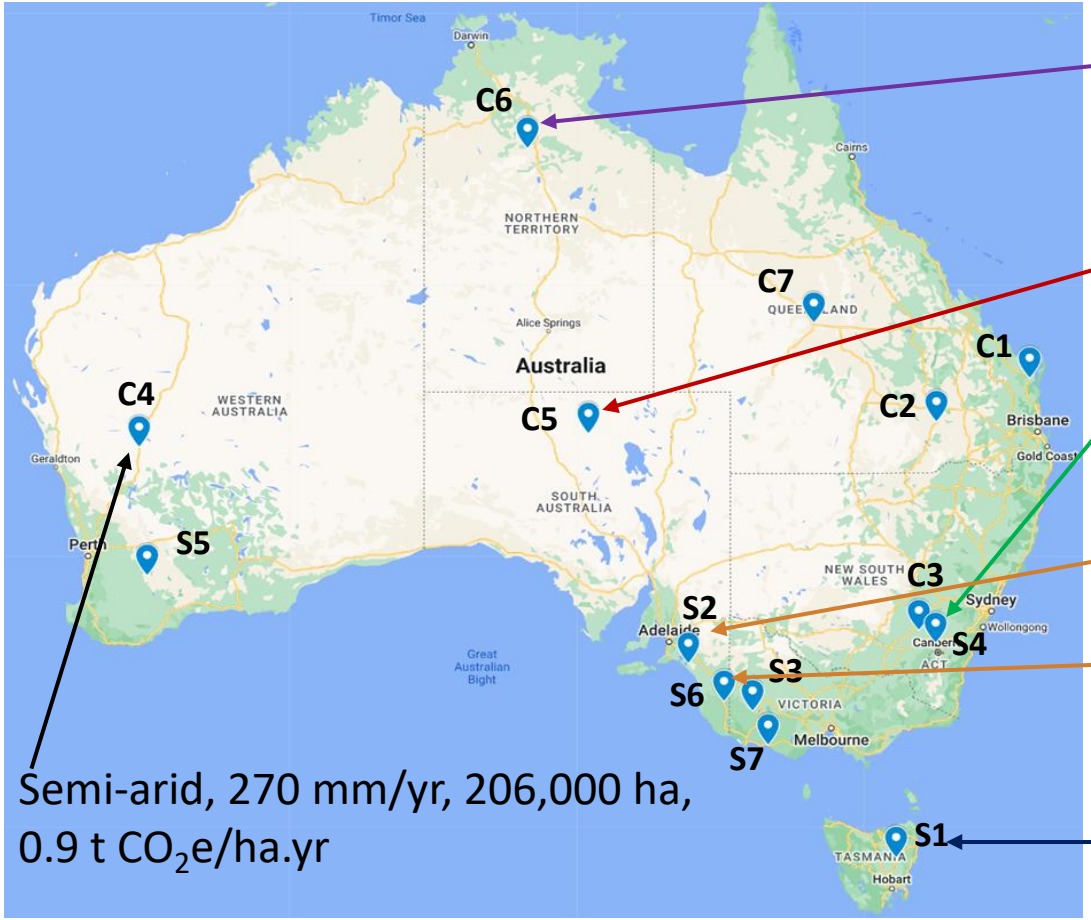
Sustainable Pathways to CN30

Aim: Explore a range of interventions to reduce net farm GHG emissions while improving production, profit and biodiversity relative to current baseline

Methods:
Long-term 30-year simulations; 6 cattle and 7 sheep farms
Biophysical models (GrassGro and CLEM)
Tree carbon sequestration (FLINTpro)
Biodiversity in tree vegetation (LOOC-B)
Greenhouse gas emissions (SB-GAF)
Simple pasture/carbon model- > ± 5% change in pasture production led to a soil carbon change
Economics (gross margin)
Low and high carbon ACCU prices (+ biodiversity $)
Low and high meat prices for meat (10-yr 25th & 75th median $)
Single price for wool production (10-yr 50th median $)
Common prices for some inputs (fertiliser, fuel, husbandry, levies), farm-specific for others (pasture management)

Bhattarai et al (2025)

Sustainable Pathways to CN30



Humid tropics, 670 mm/yr, 231,000 ha, 2.7 t CO_2e/ha.yr

Arid, 150 mm/yr, 498,000 ha, 0.5 t CO_2e/ha.yr

Temperate, 800 mm/yr, 250 ha, 8.2 t CO_2e/ha.yr

Mediterranean, 470 mm/yr, 900 ha, 6.3 t CO_2e/ha.yr

Mediterranean, 630 mm/yr, 2,000 ha, 2.8 t CO_2e/ha.yr

Semi-arid, 270 mm/yr, 206,000 ha, 0.9 t CO_2e/ha.yr

Cool temperate, 500 mm/yr, 7,777 ha, 7.8 t CO_2e/ha.yr

Sustainable Pathways to CN30

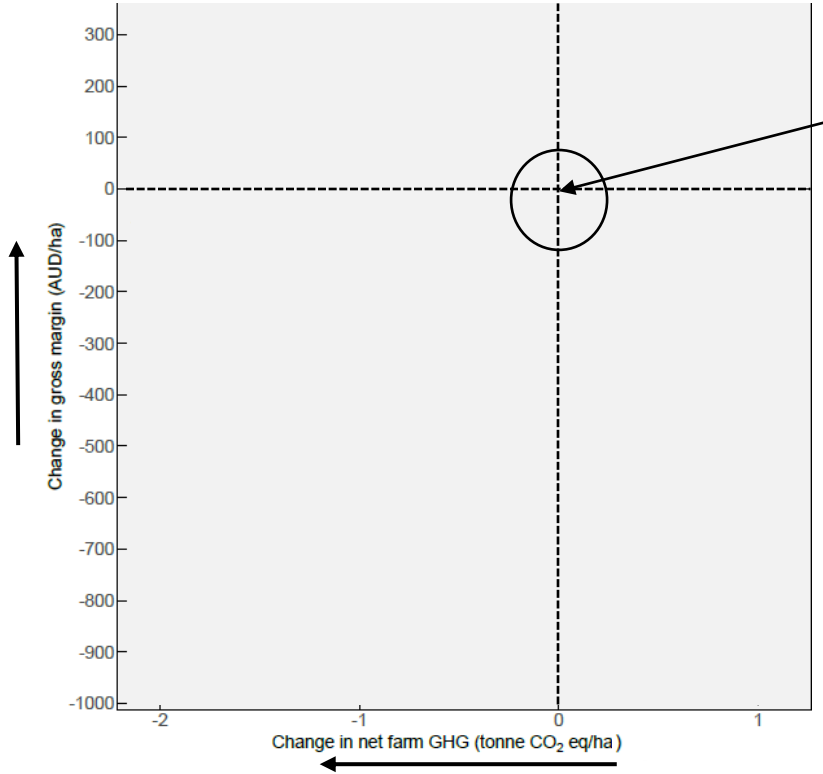
Common-themed across all farms

- 10% tree plantation: 10% grazing area removed and planted to environmental plantings, model decreased livestock numbers by ~ 10%
- 10% and 50% LWG: increased the daily LWG of non-replacement animals from birth to sell sooner but at same LW as baseline. 10% assumed through better grazing and genetics, 50% required additional supplementation
- 10% and 25% methane reduction: assumed all weaned stock consuming anti-methanogenic pastures
- 18% and 37% methane reduction: assumed all weaned stock fed either 3NOP or *Asparagopsis* daily with a grain supplement

Sustainable Pathways to CN30

Farm-specific examples (generally only done on a single farm):

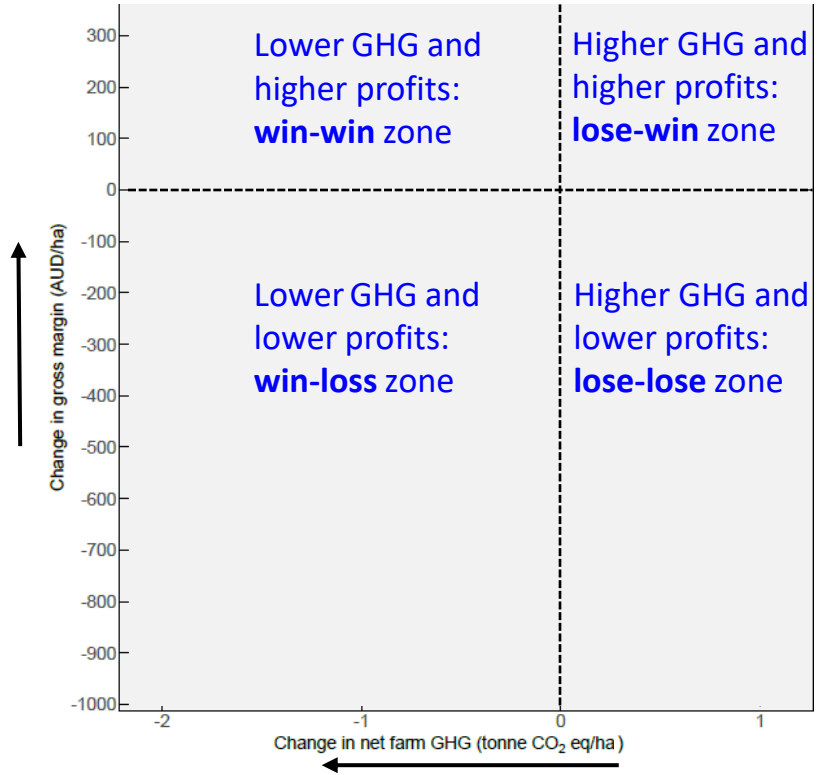
- Reduce to single-lambing ewes combined with decreasing wool micron
- Fencing off riverbanks or creek beds to allow natural regeneration of native tree species for carbon and biodiversity improvements
- Significant increase or decrease in herd size (rangeland cattle farms)
- Altering lambing dates
- Wildlife-proofing boundary paddocks to remove browsing pressure (deer, wallabies etc)- using this extra pasture to increase weaning rates or stocking rates
- Feedlotting longer over summer/autumn
- Altered grazing regimes (30-day or 120-day rotations)
- Replacing inorganic MAP fertiliser with compost
- Altering finishing ages/weights of young stock
- Altering purchase age/time for replacement ewes
- Alternative options to build soil carbon through pasture and grazing management

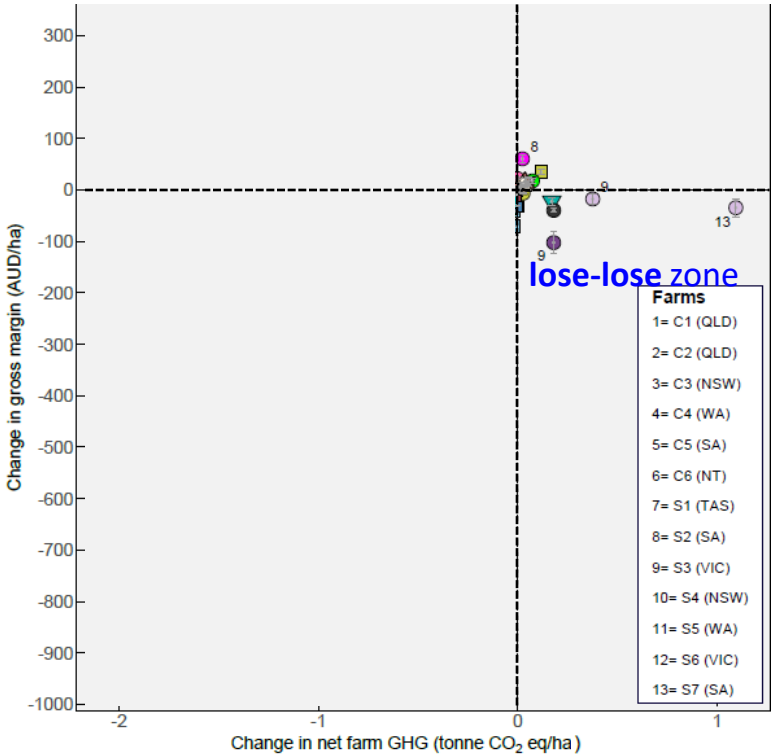


Baseline position of each farm
(profit and net GHG emissions)

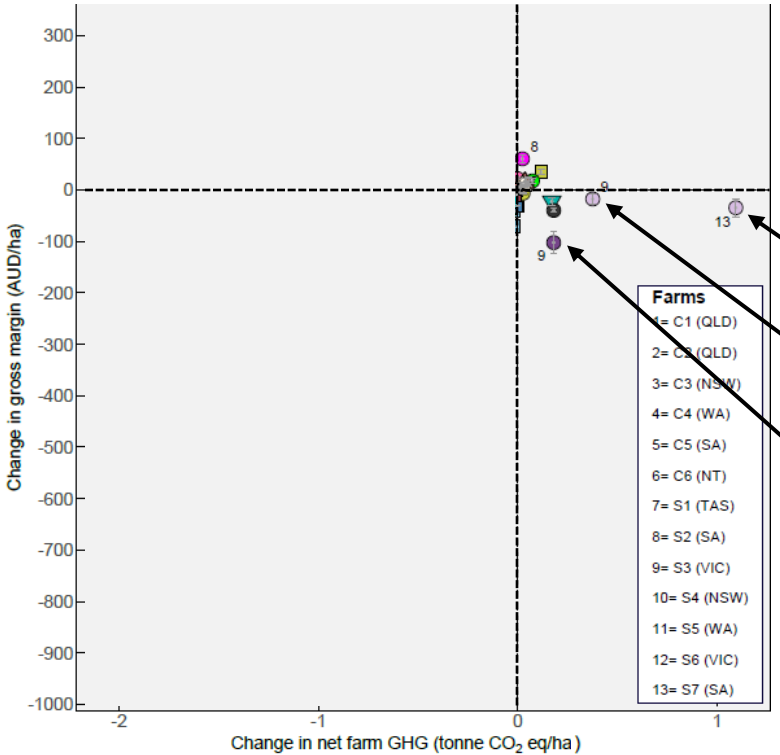
High meat, carbon and biodiversity $

Low meat, carbon and biodiversity $


Lower GHG and higher profits: win-win zone
Higher GHG and higher profits: lose-win zone
Lower GHG and lower profits: win-loss zone
Higher GHG and lower profits: lose-lose zone
Change in gross margin (AUD/ha)
300
200
100
0
-100
-200
-300
-400
-500
-600
-700
-800
-900
-1000
-2
-1
0
1
Change in net farm GHG (tonne CO_2 eq/ha)



10% Tree plantation
10% Methane reduction
18% Methane reduction
25% Methane reduction
37% Methane reduction
10% Liveweight gain
50% Liveweight gain
10% less herd
10% less land
33% less breeders
33% more breeders
Improved pastures
No urea
Reduced grazing SR 0.10
Reduced grazing SR 0.11
Reduced grazing SR 0.12
Reduced grazing SR 0.13
Finish H + S 19 mths
Finish H + S 20 mths
Finish H + S 21 mths
Finish S only 19 mths
Finish S only 20 mths
Lime
Pastures + SSP
Rotational grazing
Increase herd size
N fertilisation
Diversified pastures
Omega 3 rich diets
Compost application
Single lambs, reduced wool micron
Cell grazing, 30-day rotation
Cell grazing, 120-day rotation
Reduce grazing area by 100ha only
Fence, increase feed and stocking
Fence, increase feed and weaning
Fence, increase feed supply
Increased stocking rate
Increased confinement feeding
Increased stocking and confinement feeding
June lambing
August lambing
June lambing CFA Sept
Purchase 1.5 yr old Cull July
Purchase 1.5 yr old Cull Sept.
Purchase 4.5 yr old Cull July
Purchase 4.5 yr old Cull Sept.
WR 112 % + supps
WR 120 % + supps
WR 140% + supps



Altered grazing regimes, especially if they do not result in additional pasture production (i.e. loss of soil carbon) and/or decline in livestock production

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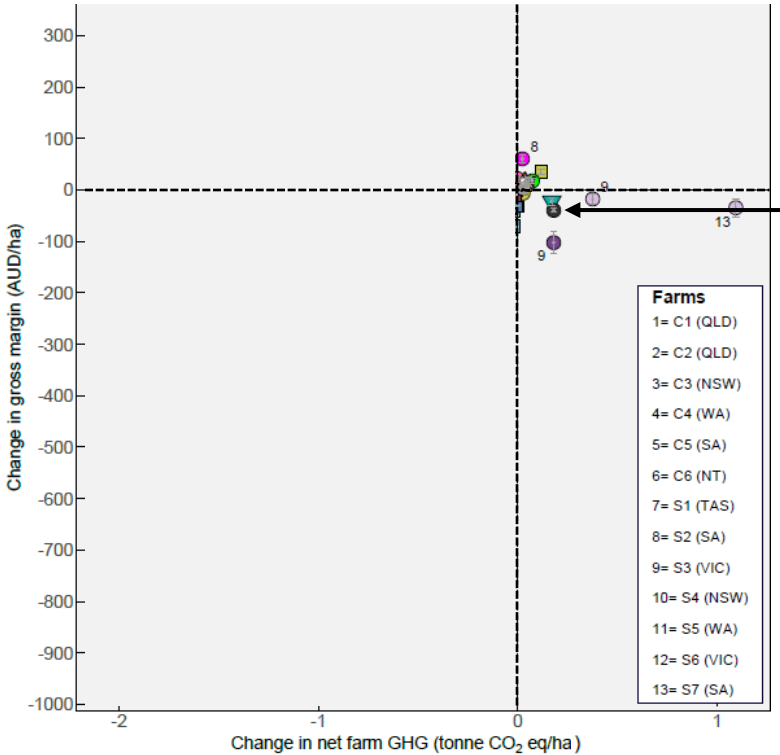
WR 112 % + supps
WR 120 % + supps
WR 140% + supps



Replacing MAP fertiliser with compost

10% Tree plantation
10% Methane reduction
18% Methane reduction
25% Methane reduction
37% Methane reduction
10% Liveweight gain
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10% less herd
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Purchase 4.5 yr old Cull July
Purchase 4.5 yr old Cull Sept.
WR 112 % + supps
WR 120 % + supps
WR 140% + supps


lose-win zone
Change in gross margin (AUD/ha)
Change in net farm GHG (tonne CO_2 eq/ha)
Farms
1= C1 (QLD)
2= C2 (QLD)
3= C3 (NSW)
4= C4 (WA)
5= C5 (SA)
6= C6 (NT)
7= S1 (TAS)
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11= S5 (WA)
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13= S7 (SA)
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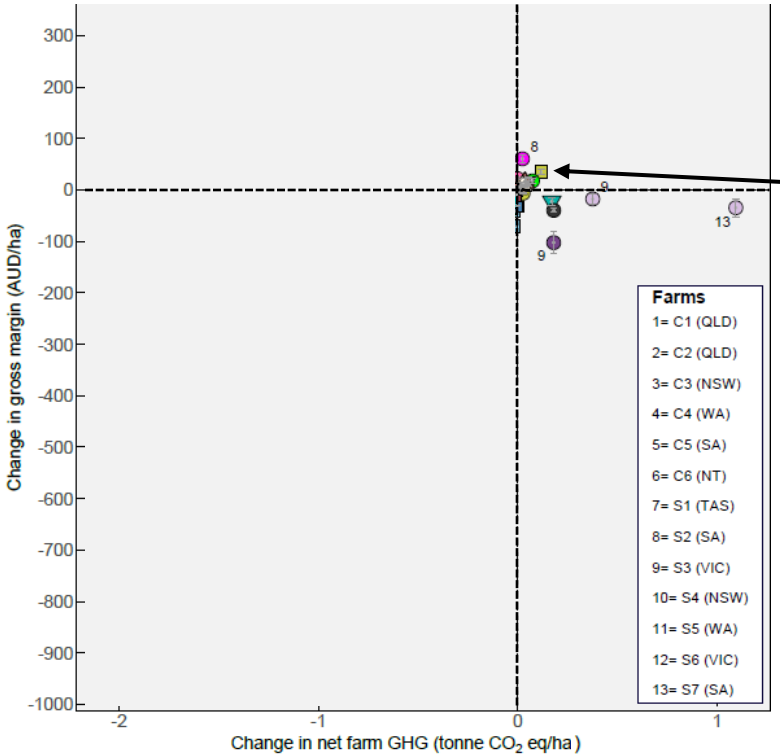
Purchase 4.5 yr old Cull Sept.
WR 112 % + supps
WR 120 % + supps
WR 140% + supps



33% more breeders

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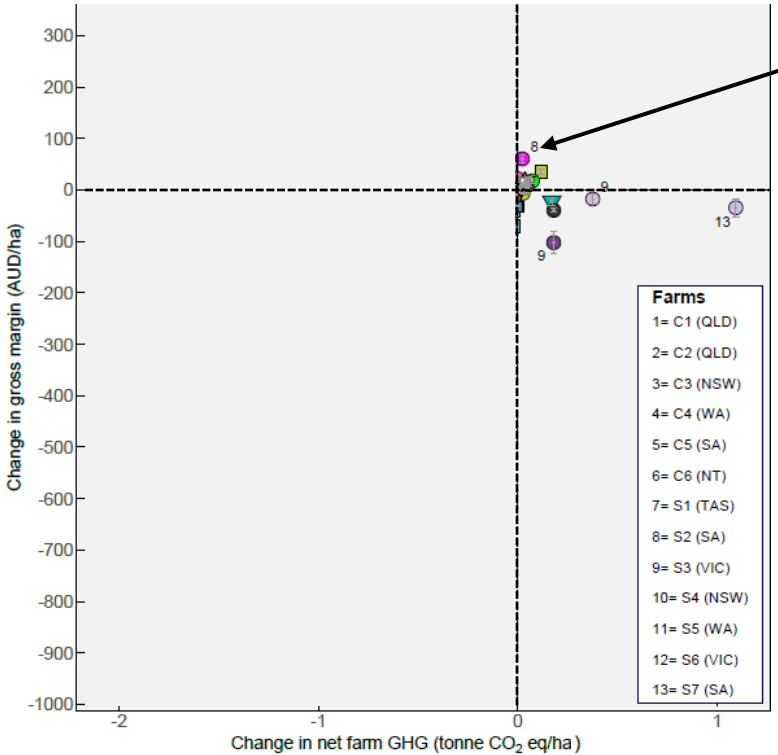
WR 112 % + supps
WR 120 % + supps
WR 140% + supps



Increasing weaning rates with supplementary feeding

10% Tree plantation
10% Methane reduction
18% Methane reduction
25% Methane reduction
37% Methane reduction
10% Liveweight gain
50% Liveweight gain
10% less herd
10% less land
33% less breeders
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Improved pastures
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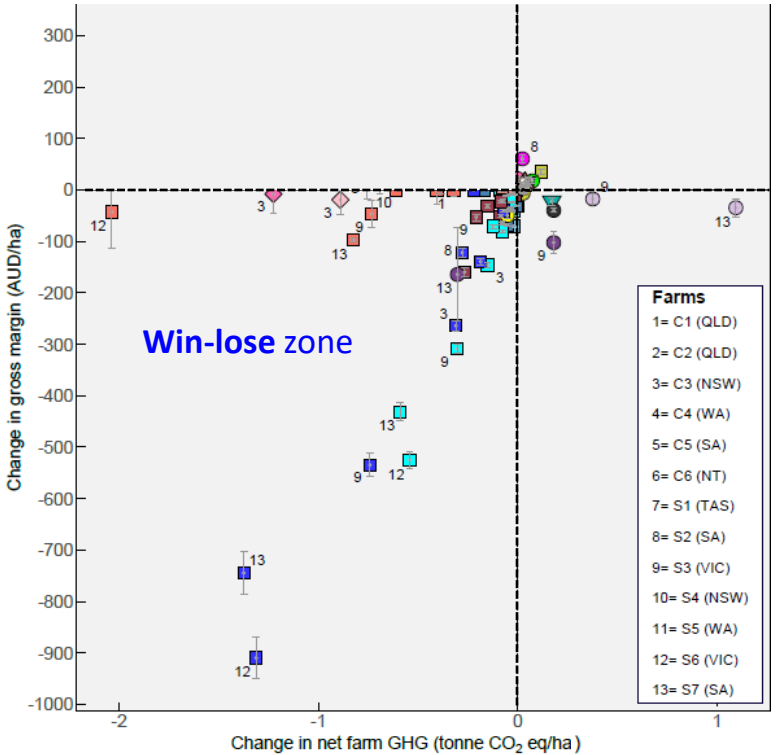
WR 112 % + supps
WR 120 % + supps
WR 140% + supps



- 10% Tree plantation
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- 37% Methane reduction
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- WR 112 % + supps
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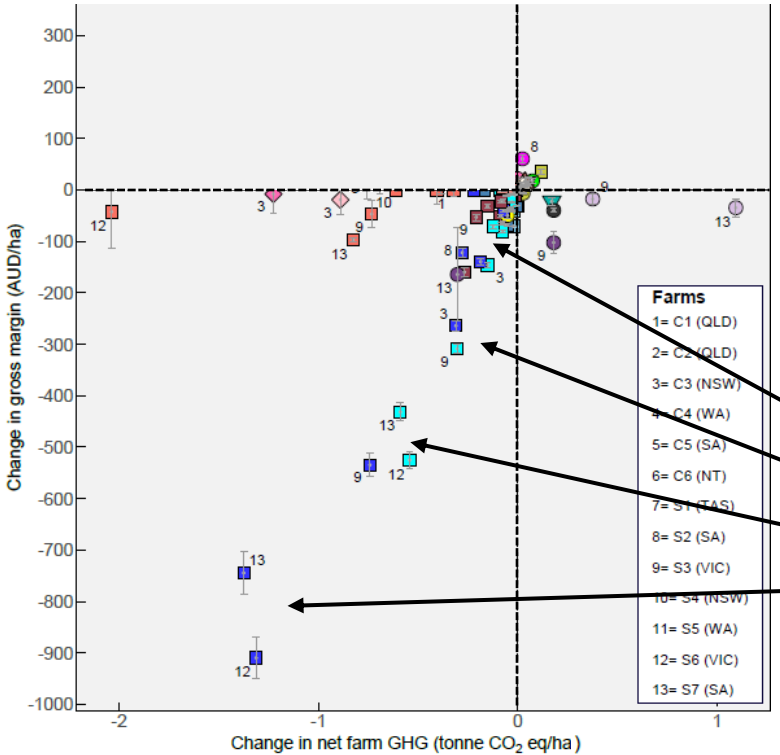
- WR 140% + supps



18% and 37% anti-methanogenic supplementation

10% Tree plantation
10% Methane reduction
18% Methane reduction
25% Methane reduction
37% Methane reduction
10% Liveweight gain
50% Liveweight gain
10% less herd
10% less land
33% less breeders
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WR 112 % + supps
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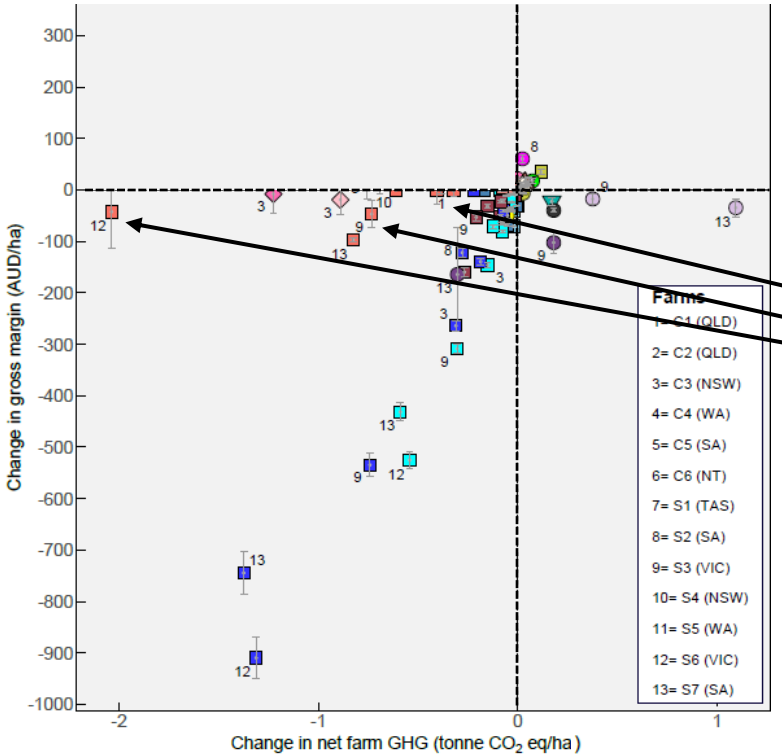
WR 140% + supps



Planting 10% of grazing area to tree vegetation

- 10% Tree plantation
- 10% Methane reduction
- 18% Methane reduction
- 25% Methane reduction
- 37% Methane reduction
- 10% Liveweight gain
- 50% Liveweight gain
- 10% less herd
- 10% less land
- 33% less breeders
- 33% more breeders
- Improved pastures
- No urea
- Reduced grazing SR 0.10
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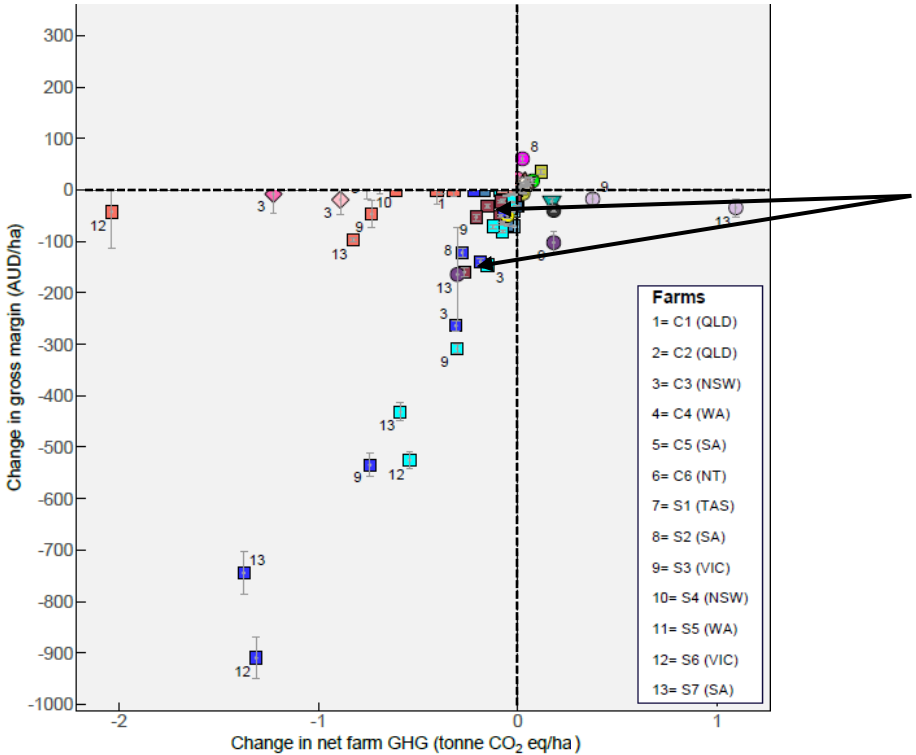
- WR 112 % + supps
- WR 120 % + supps
- WR 140% + supps



Increasing LWG by 50%, to finish young stock sooner, if no longer present on farm for shearing

- 10% Tree plantation
- 10% Methane reduction
- 18% Methane reduction
- 25% Methane reduction
- 37% Methane reduction
- 10% Liveweight gain
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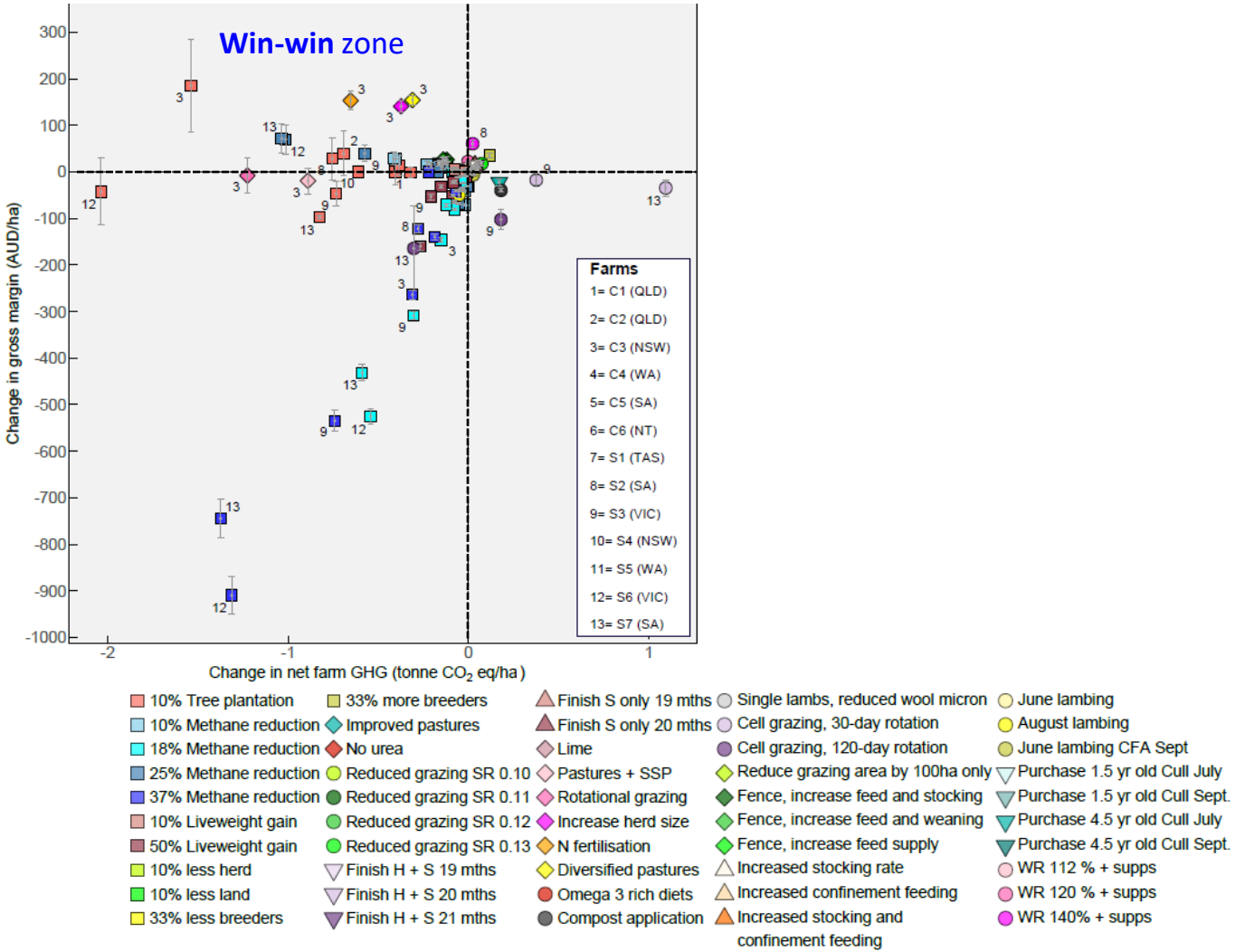
Win-win zone
Change in gross margin (AUD/ha)
Change in net farm GHG (tonne CO_2 eq/ha)
Farms
1= C1 (QLD)
2= C2 (QLD)
3= C3 (NSW)
4= C4 (WA)
5= C5 (SA)
6= C6 (NT)
7= S1 (TAS)
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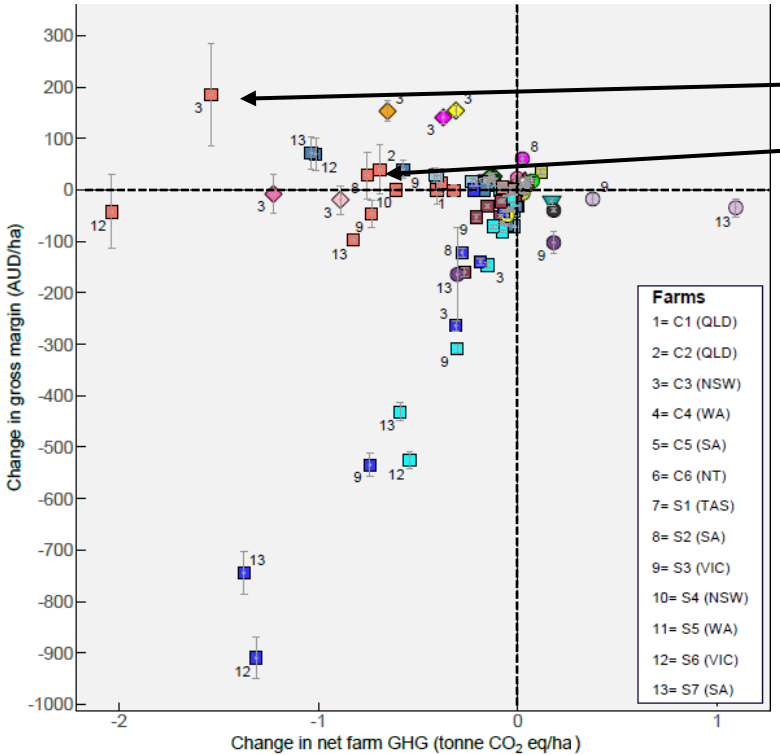

Planting 10% of grazing area to tree vegetation

10% Tree plantation
10% Methane reduction
18% Methane reduction
25% Methane reduction
37% Methane reduction
10% Liveweight gain
50% Liveweight gain
10% less herd
10% less land
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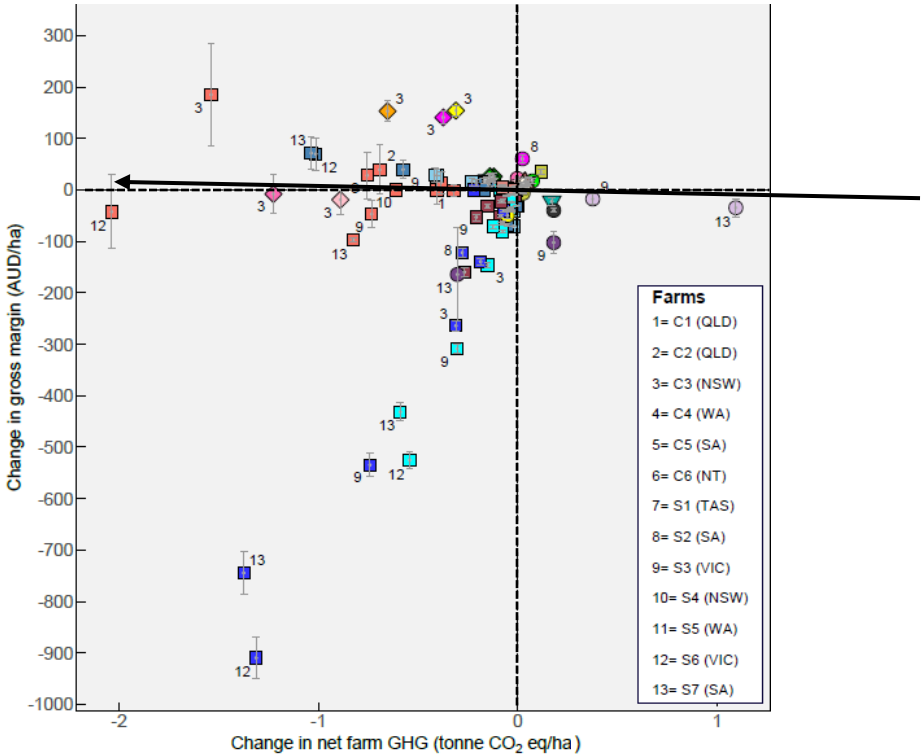

Planting 10% of grazing area to tree vegetation can be profitable if the price of meat, carbon and biodiversity are high

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- 37% Methane reduction
- 10% Liveweight gain
- 50% Liveweight gain
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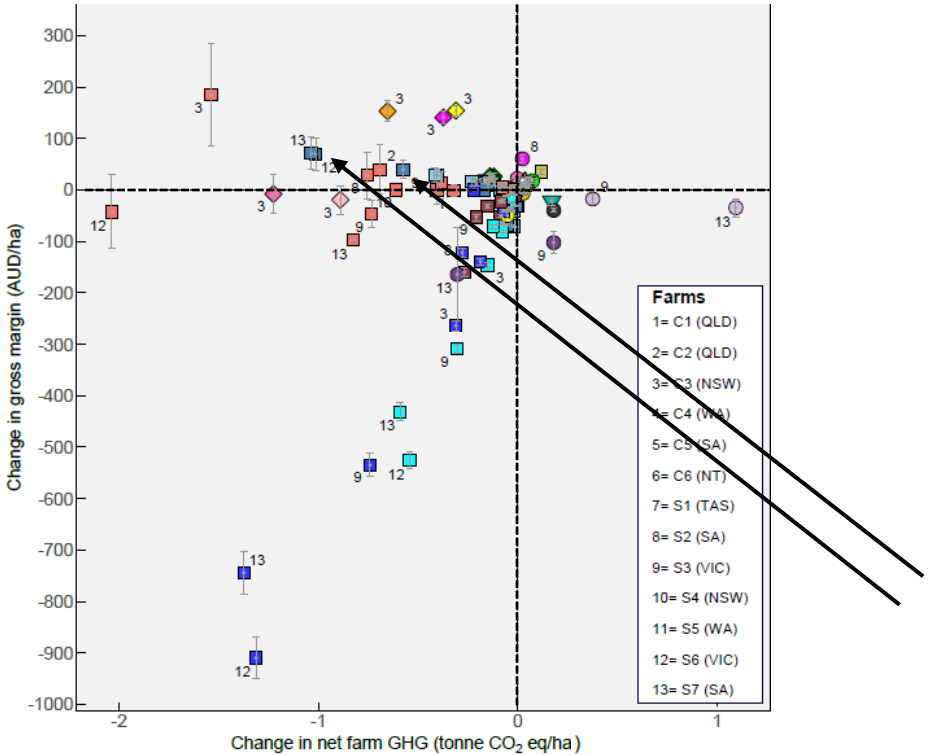

25% anti-methanogenic pastures

10% Tree plantation
10% Methane reduction
18% Methane reduction
25% Methane reduction
37% Methane reduction
10% Liveweight gain
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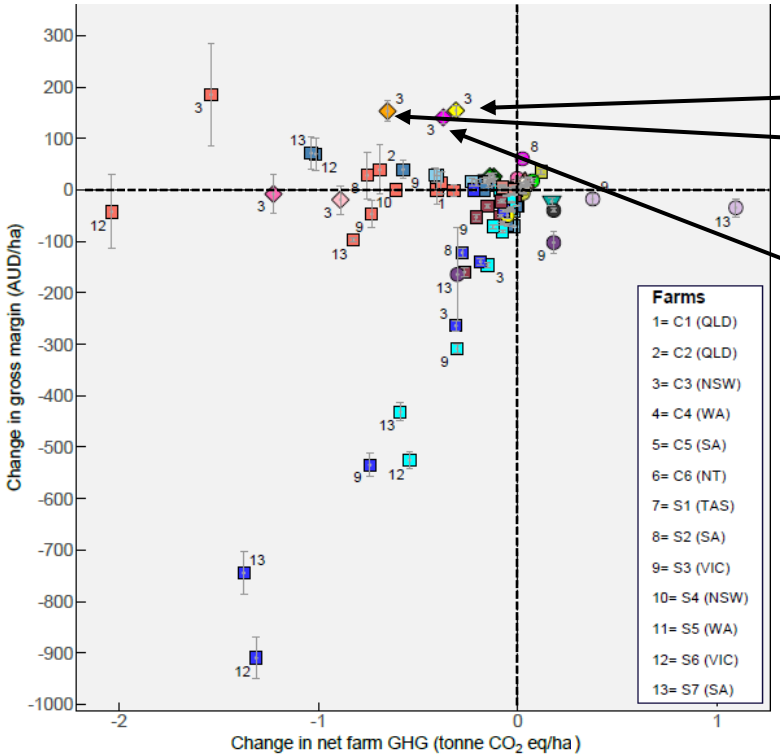
Purchase 1.5 yr old Cull July
Purchase 1.5 yr old Cull Sept.
Purchase 4.5 yr old Cull July
Purchase 4.5 yr old Cull Sept.
WR 112 % + supps
WR 120 % + supps
WR 140% + supps



N fertilisation or diversification of pastures – grow more feed can mean more carbon sequestered in soils (retained same herd, just finished stock sooner)

Interestingly, the increased herd size also resulted in a net decline in GHG emissions, more carbon sequestered than emissions from extra livestock

Must be noted, this is a newly purchased run-down farm with plenty of scope to improve soil carbon

- 10% Tree plantation
- 10% Methane reduction
- 18% Methane reduction
- 25% Methane reduction
- 37% Methane reduction
- 10% Liveweight gain
- 50% Liveweight gain
- 10% less herd
- 10% less land
- 33% less breeders
- 33% more breeders
- Improved pastures
- No urea
- Reduced grazing SR 0.10
- Reduced grazing SR 0.11
- Reduced grazing SR 0.12
- Reduced grazing SR 0.13
- Finish H + S 19 mths
- Finish H + S 20 mths
- Finish H + S 21 mths
- Finish S only 19 mths
- Finish S only 20 mths
- Lime
- Pastures + SSP
- Rotational grazing
- Increase herd size
- N fertilisation
- Diversified pastures
- Omega 3 rich diets
- Compost application
- Single lambs, reduced wool micron
- Cell grazing, 30-day rotation
- Cell grazing, 120-day rotation
- Reduce grazing area by 100ha only
- Fence, increase feed and stocking
- Fence, increase feed and weaning
- Fence, increase feed supply
- Increased stocking rate
- Increased confinement feeding
- Increased stocking and confinement feeding
- June lambing
- August lambing
- June lambing CFA Sept
- Purchase 1.5 yr old Cull July
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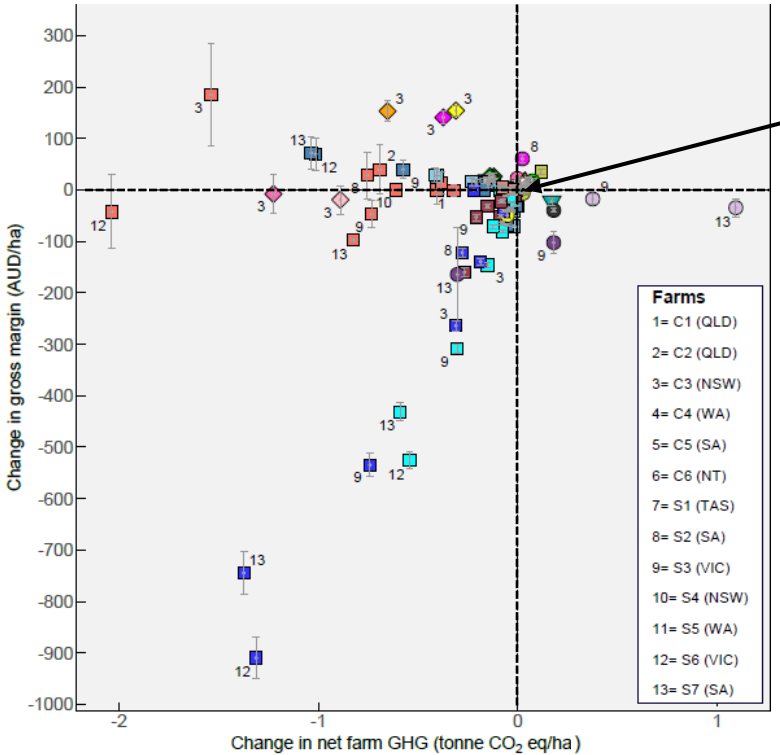

A lot of interventions, both common-themed (e.g. 10% LWG) and farm-specific, centred around the baseline

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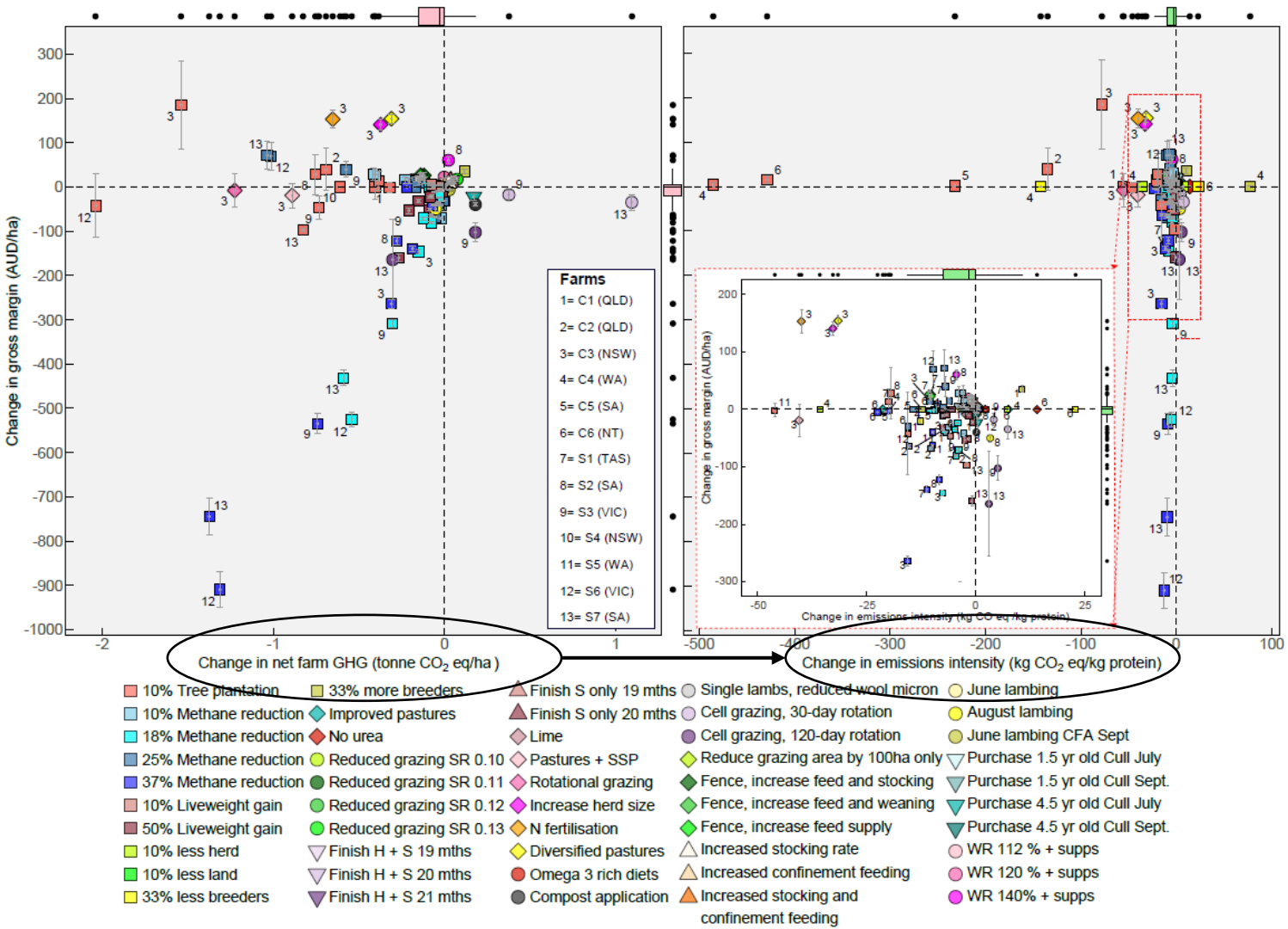
Change in gross margin (AUD/ha)
Change in net farm GHG (tonne CO_2 eq/ha)
Change in emissions intensity (kg CO_2 eq/kg protein)
Change in gross margin (AUD/ha)
Change in emissions intensity (kg CO_2 eq/kg protein)
Farms
1= C1 (QLD)
2= C2 (QLD)
3= C3 (NSW)
4= C4 (WA)
5= C5 (SA)
6= C6 (NT)
7= S1 (TAS)
8= S2 (SA)
9= S3 (VIC)
10= S4 (NSW)
11= S5 (WA)
12= S6 (VIC)
13= S7 (SA)
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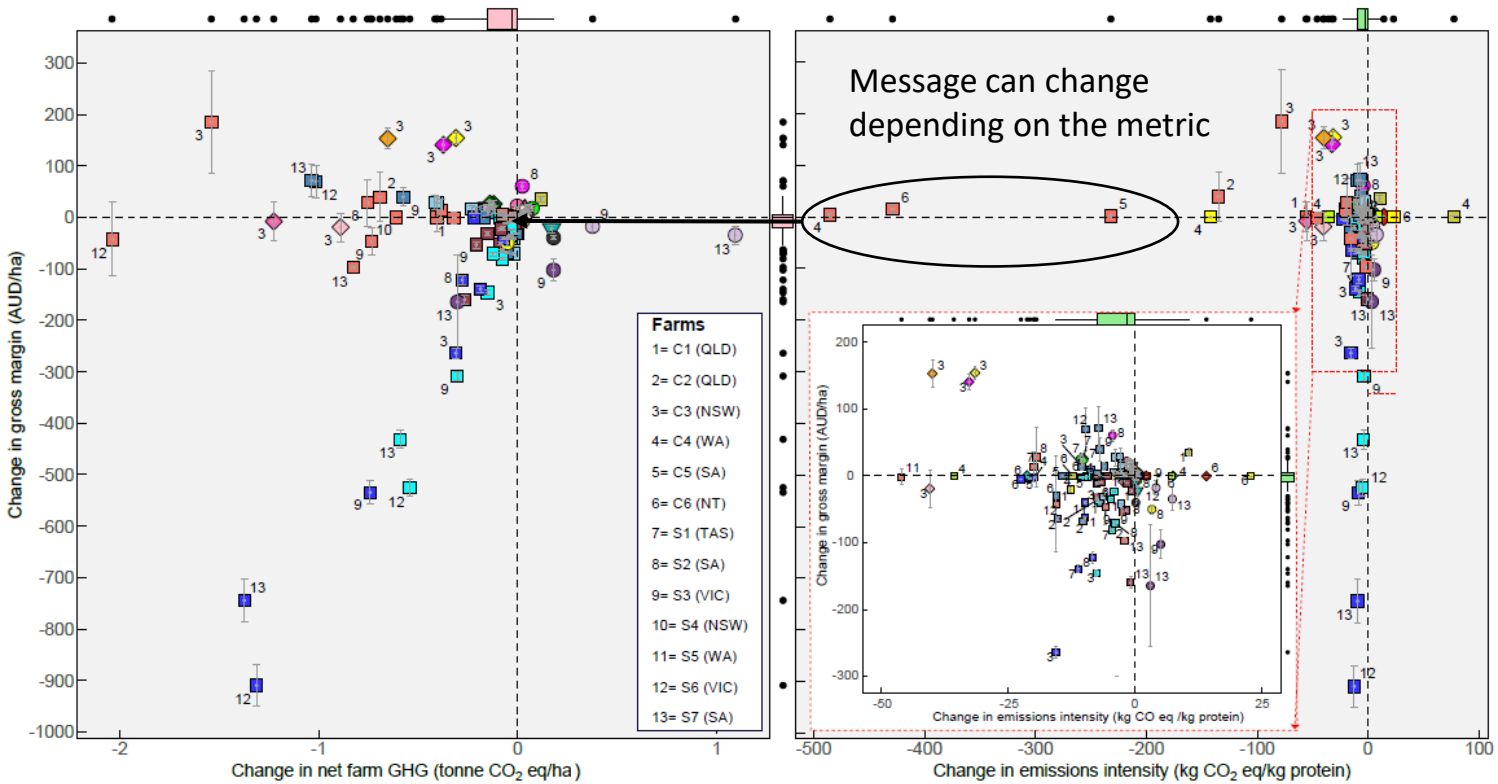

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Take home messages

- The Australian livestock sector has significantly reduced net GHG emissions, but mostly through avoided deforestation and building of soil carbon- this needs to continue
- Planting trees on farm is good for carbon sequestration, but it can also result in substantial benefits for biodiversity (turning around recent losses)
- Range of factors need to be considered if tree-plantings are profitable for your farm (i.e. ACCU/ biodiversity prices, can you retain similar stock numbers/production, co-benefits of trees etc.)
- Anti-methanogenic diet additives can reduce GHG emissions, but costs of implementation must be significantly lower than we modelled. We also didn't account for management/practicalities
- Anti-methanogenic pastures had good promise, especially if no additional cost and fit into your current feedbase
- Farm specific interventions were quite variable in terms of quadruple bottom line
- The greatest benefit may come from practice changes that address an underlying economic, environmental and/or production deficit

Tools and resources

- https://www.utas.edu.au/tia/research/research-projects/project/livestock-production/carbon-storage-partnership
- https://www.youtube.com/@matthewharrison6233
- https://looc-c.farm/ and https://looc-b.farm/
- Bowen Butchart et al (2024) https://doi.org/10.1016/j.agsy.2024.104168
- Harrison et al (2021) https://www.researchgate.net/publication/353367793
- McDonald et al (2023) https://www.sciencedirect.com/science/article/pii/S0301479723019345
- MLA's CarbonEDGE program
- MLA's Profitable Grazing Systems program (in development)

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Quotes from case study farmers

- *I could see how the modelling helps us determine **which options are really worth pursuing**. I see this as a decision-making tool for what we will do on farm*
- ***Life is always about trade-offs**. Nothing comes for free. Especially related to profit. That is something we think of everyday. **Every decision comes at a cost**. There is very rarely an optimum. It is about trading one thing for another*
- *It is nice to reduce GHG with trees but **main reason we plant is for livestock, biodiversity and looks better** although we know they are difficult to quantify*
- *This project has **contributed to my knowledge of carbon and biodiversity**. The results align with my intuition. In fact, we have **already made the some of the changes indicated by the modelling**. Very important to make decisions based on evidence*
- *I will use these **results as a stepping stone to another project**. Have learnt a lot – but need it to sink in. How do we quantify what is going on on-farm now? **Cannot prosecute farmers for producing methane***

Soil and pasture investments in 2025 – Where do we start?

Felicity Turner

Mel Fraser

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A bit about you...

- https://www.mentimeter.com/app/presentation/alho5mn2juq6oqi8thhh1hj7pt5phecd/edit?question=52bz1nvuww38

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Where do we start?

- Assess the current pasture base & look for indicator species
- Understand current fertility levels
- Understand / identify any additional soil constraints

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Assessing the pasture base - Perennial Grass Pastures

Critical factors
(Pasture paramedic)

- Groundcover
- Dry Matter
- Live sown perennial grasses

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Decision Matrix – Pasture paramedic

Decision Wizard
> FARM DECISIONS MADE CLEAR <

Do I need to manipulate this perennial pasture?

Trigger	Late summer, Early autumn

Consideration	Condition when I would think differently	Value	Test Score
Ground cover	Greater than 70% on flats, 90% on slopes	3	
	Less than 70% groundcover, 90% on slopes	0	
Current level of Dry Matter	1000-2000 kg DM/ha	4	
	Greater than 2000 kg DM/ha	1	
	Less than 1000 kg DM/ha	0	
Presence of live sown perennial grasses	Greater than 2 phalaris, tall fescue or cocksfoot in square, 3 perennial ryegrass	7	
	1 or 2 phalaris, tall fescue or cocksfoot in square, 1-3 ryegrass plants	4	
	No live sown perennial grasses	0	

Max value	14
Risk tolerance	moderate

Decision	Suggested score	Confirmed score
Current management suitable but consider improvements	More than 11	
Consider resowing or oversowing	9 to 11	
Consider pasture manipulation	Less than 9	

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Assessing the pasture base - Perennial Lucerne pastures

Critical factors

- Plant Density
- Groundcover
- ‘Strength of stand’

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Decision Matrix – Lucerne management

Decision Wizard
> FARM DECISIONS MADE CLEAR <

Do I need to manipulate this lucerne stand?

Trigger	Autumn	
Consideration	**Condition when I would think differently**	**Value**
Current plant density	Greater than 18 plants /m2	10
	12-18 plants / m2	5
	Less than 12 plants/m2	0
Current level of groundcover	Greater than 70% groundcover	6
	Less than 70% groundcover	0
'Strength' of stand	Stand is solid and can withstand cultivation	5
	Some plant losses may occur with cultivation	3
	Stand will not withstand cultivation	0
Max value	21	
Risk tolerance	moderate	

Decision	Suggested score	Confirmed score
Maintain existing stand	More than 16	More than 15
Consider oversowing with an annual / grazing cereal	14 to 16	8 to 15
Consider renovation or sowing an annual	Less than 14	Less than 8

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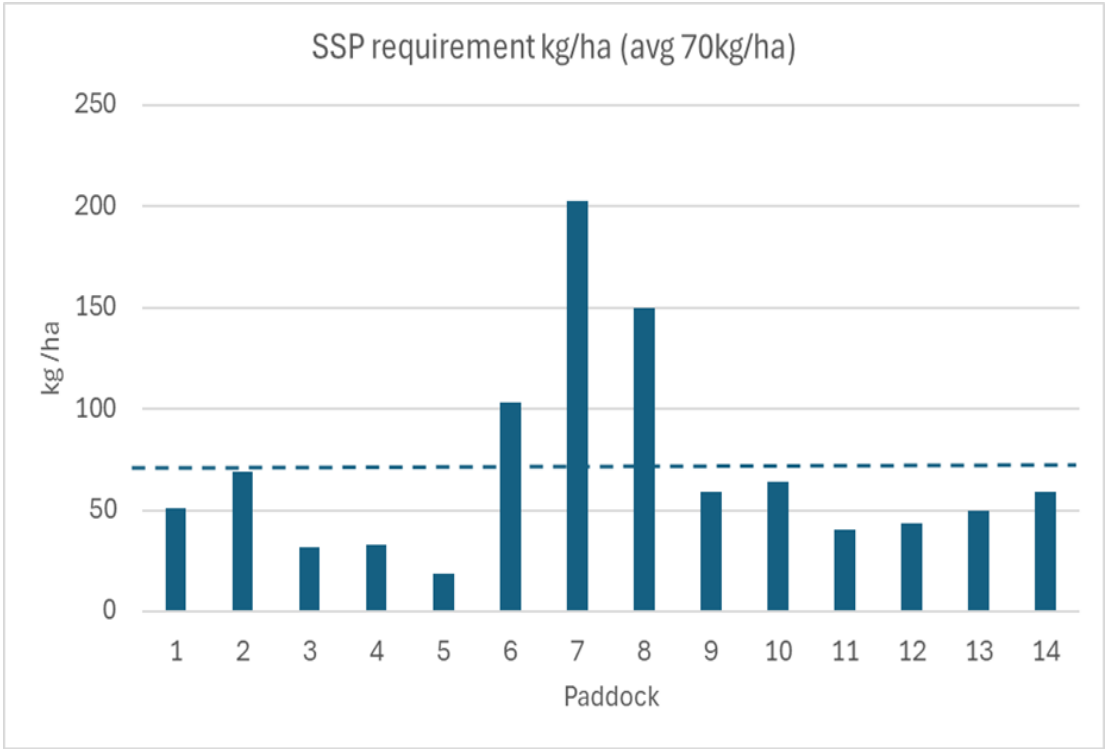
Current production levels

- Where are you getting your best return?



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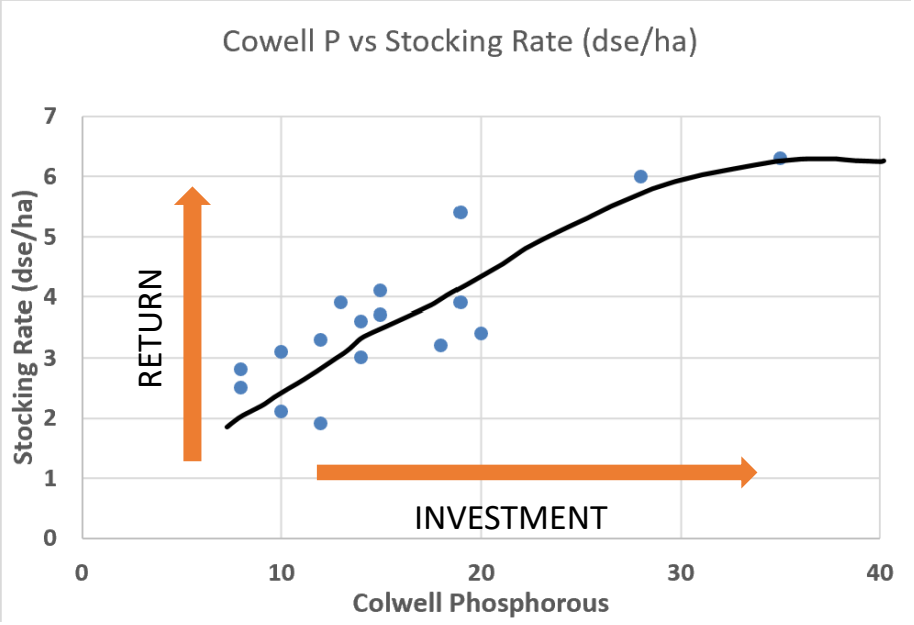
Current fertility levels

- Where are you going to get your best return?



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Prioritising Investment…

- Scoring paddocks
- Lose the blanket approach
- Consider oversowing with annuals for quick feed

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When renovating pastures…

Don’t miss the opportunity to treat:

- Acidity
- Water repellence
- Compaction
- Nutrient deficiencies

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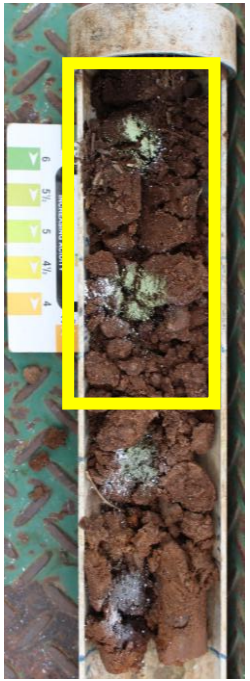
Acidity

Deep sands

Clays and loams



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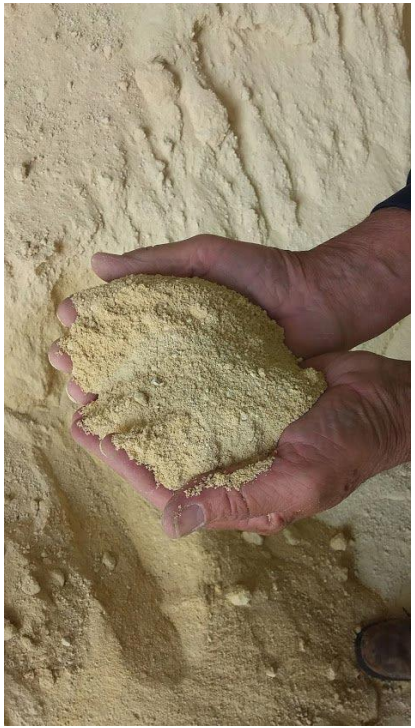
Treating Acidity – Incorporation counts



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Water Repellence

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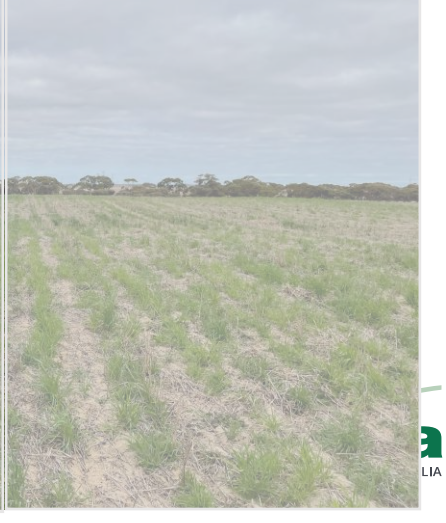
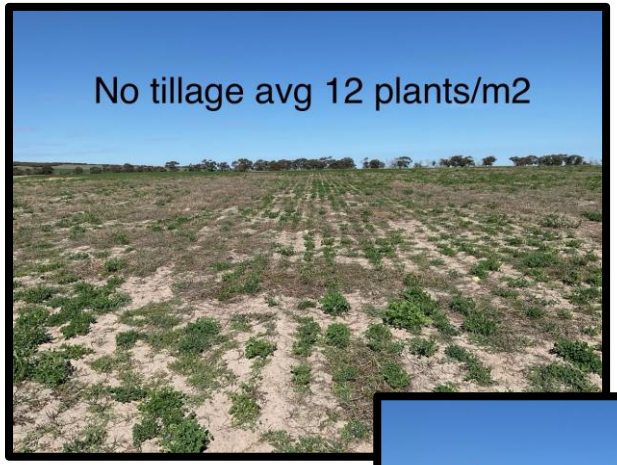
Water Repellence

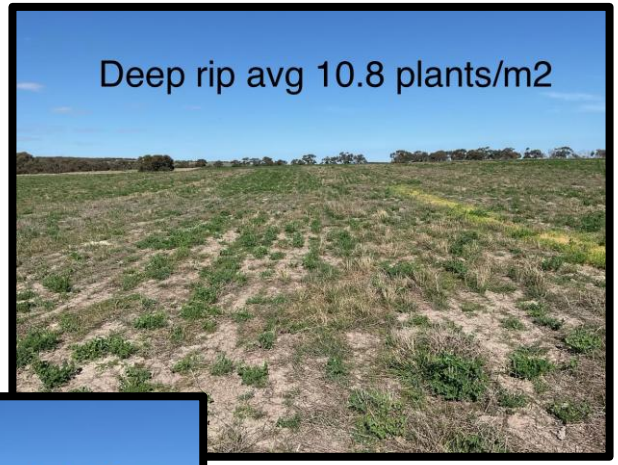
	Control	Inversion	Deep Rip
Cumulative DM	8.3 t/ha	11.6 t/ha	10.5 t/ha
Carrying Capacity @40% utilisation	3.0 DSE/ha	4.2 DSE/ha	3.8 DSE/ha
GM @ $50/DSE	$150	$210 (+$60/ha)	$190 (+$40/ha)

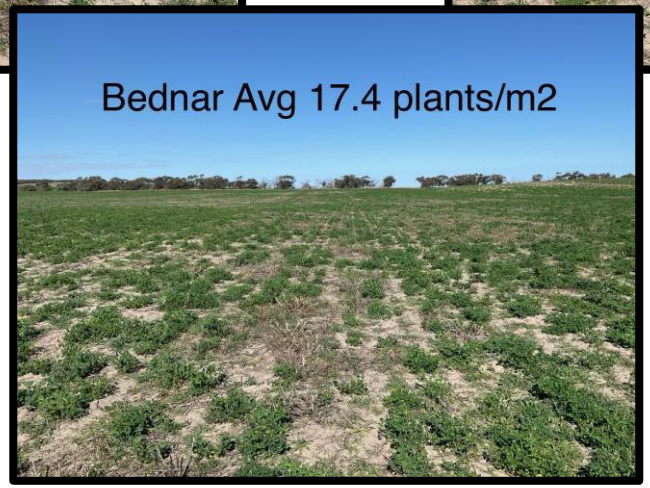


Treating compaction – mixing matters?

Treating compaction – mixing matters?







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Treating compaction (mixing matters in perennial pastures!)

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Nutrition counts

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Nutrition counts

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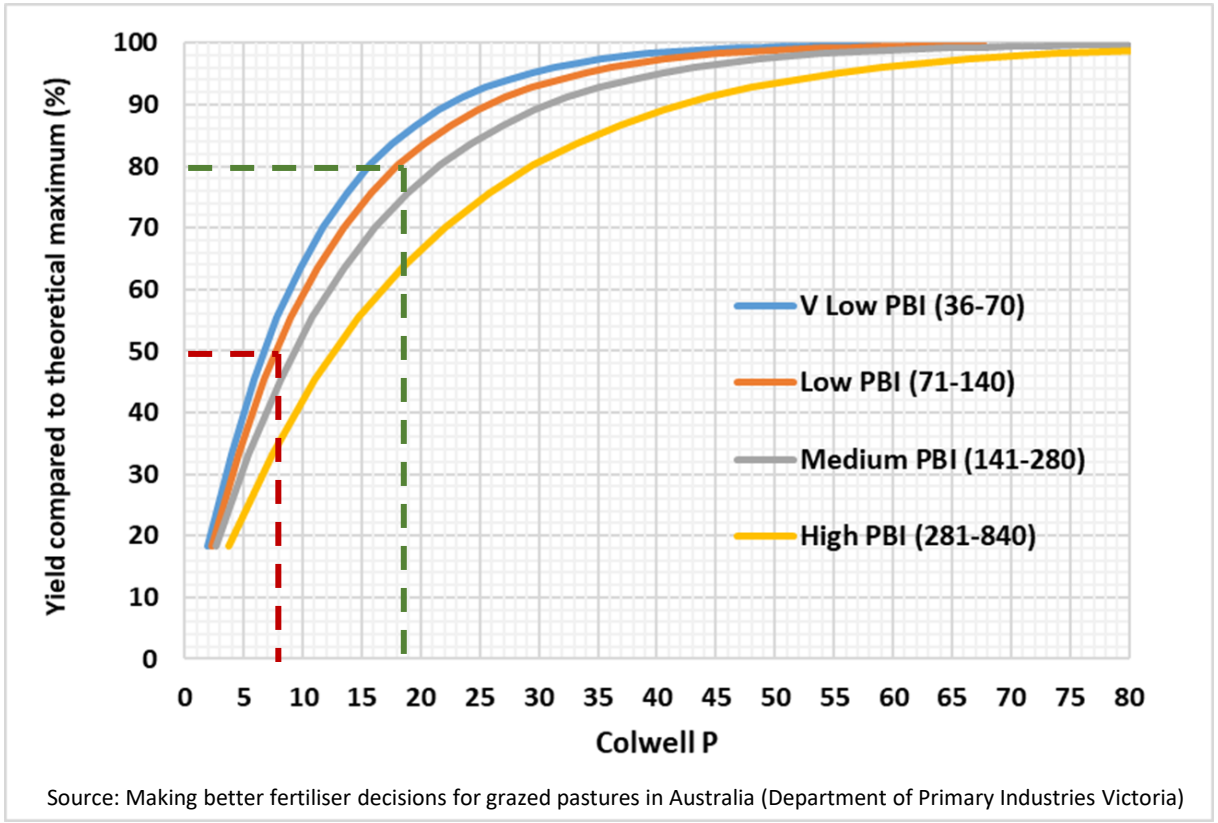
Nutrition counts



Source: Making better fertiliser decisions for grazed pastures in Australia (Department of Primary Industries Victoria)

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Thankyou

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Fast tracking genetic progress – The latest tools and technology to maximise gain

Peta Bradley

Meat & Livestock Australia

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The 1955 Flood and how it relates to genetics

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The 1955 Flood and how it relates to genetics

DOHNE+	PWT	YCFW	YFD	YEMD	YFAT
196.56	6.73	7.94	-0.23	0.55	-0.43
ACC. 58	ACC. 74	ACC. 70	ACC. 83	ACC. 68	ACC. 65
TOP 5%	TOP 20%				

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Today's Presentation - Fast-tracking genetic progress

1. Tomorrow's World of Genetics: A Preview

2. Genetics Research and Development: Building the Future Today

3. Genetic Products: From Theory to Practice

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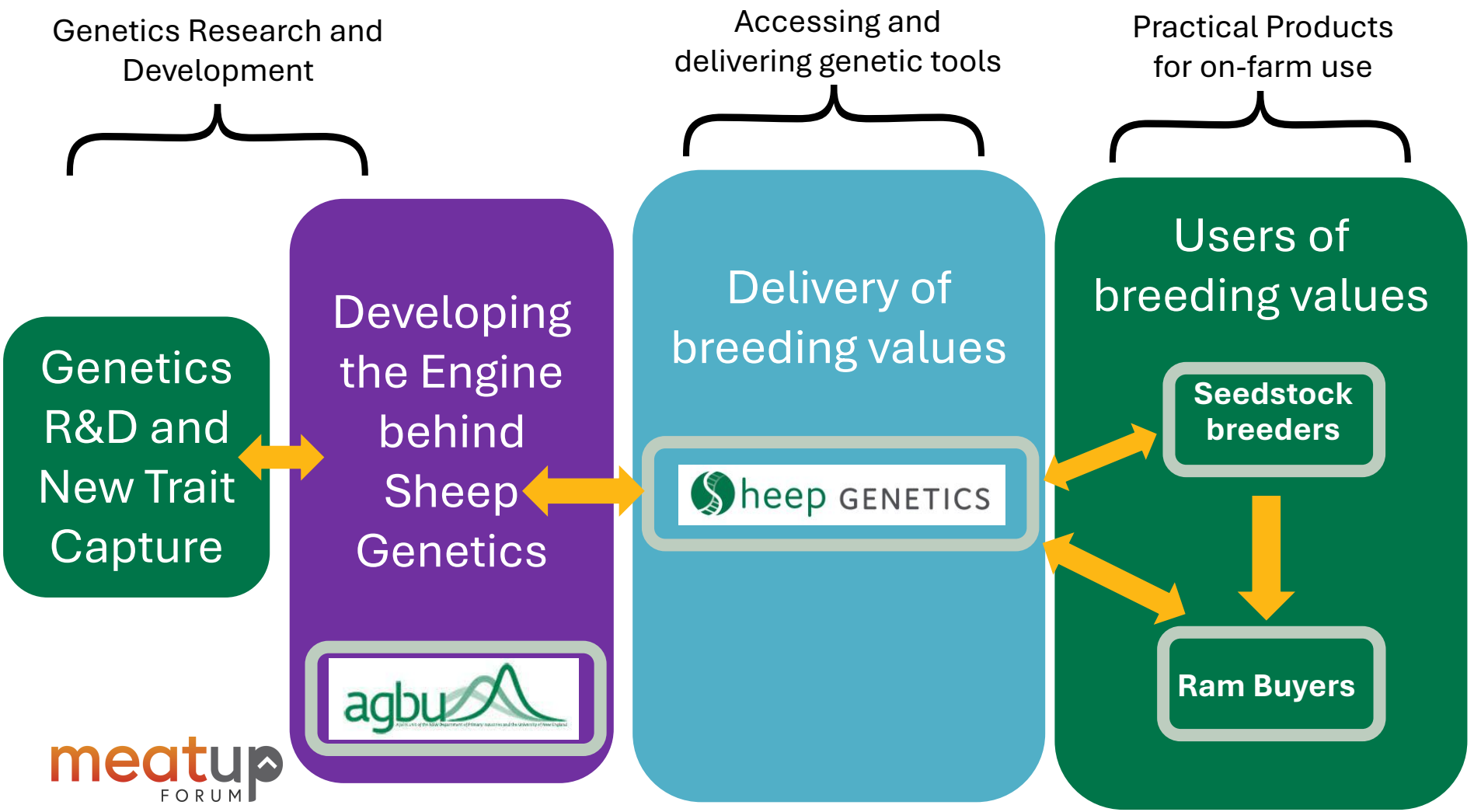
Genetics Research and Development
Accessing and delivering genetic tools
Practical Products for on-farm use
Genetics R&D and New Trait Capture
Developing the Engine behind Sheep Genetics
agbu
Delivery of breeding values
Sheep GENETICS
Users of breeding values
Seedstock breeders
Ram Buyers
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1. Tomorrow’s World of Genetics: A Preview

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1.1. What does the future look like for sheep breeding

“To describe the genetic merit of ALL sheep using world-leading genetic products that facilitate genetic progress”

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1.2 What does that mean: at a ram sale

What traits?

What animals can we compare?

What will our indexes look like?

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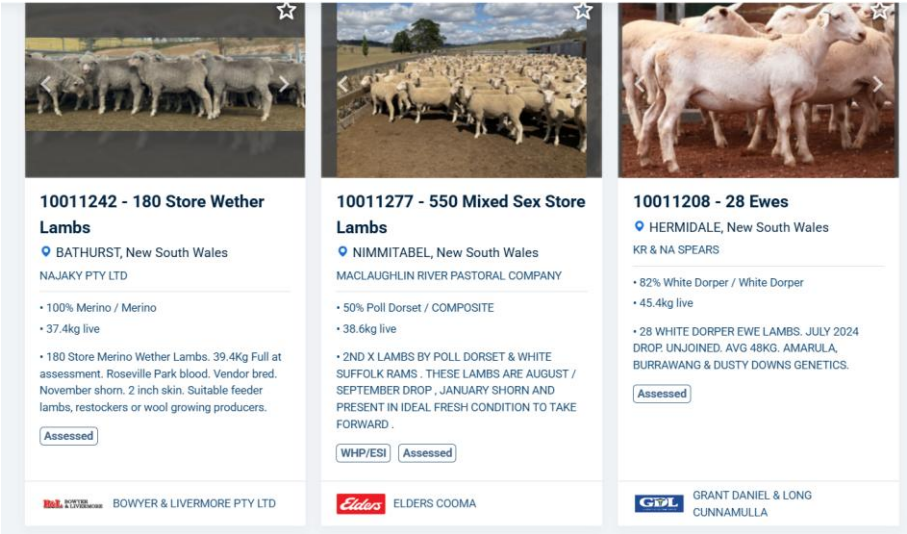
1.3 What does that mean: on-line, in the saleyards, with processors?



Animals sold with descriptions of genetic merit

...and valued accordingly

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1.4 What does that mean: for individual animals

Within flock selection of future parents

Utilising data from on-farm collection to inform genetic decisions

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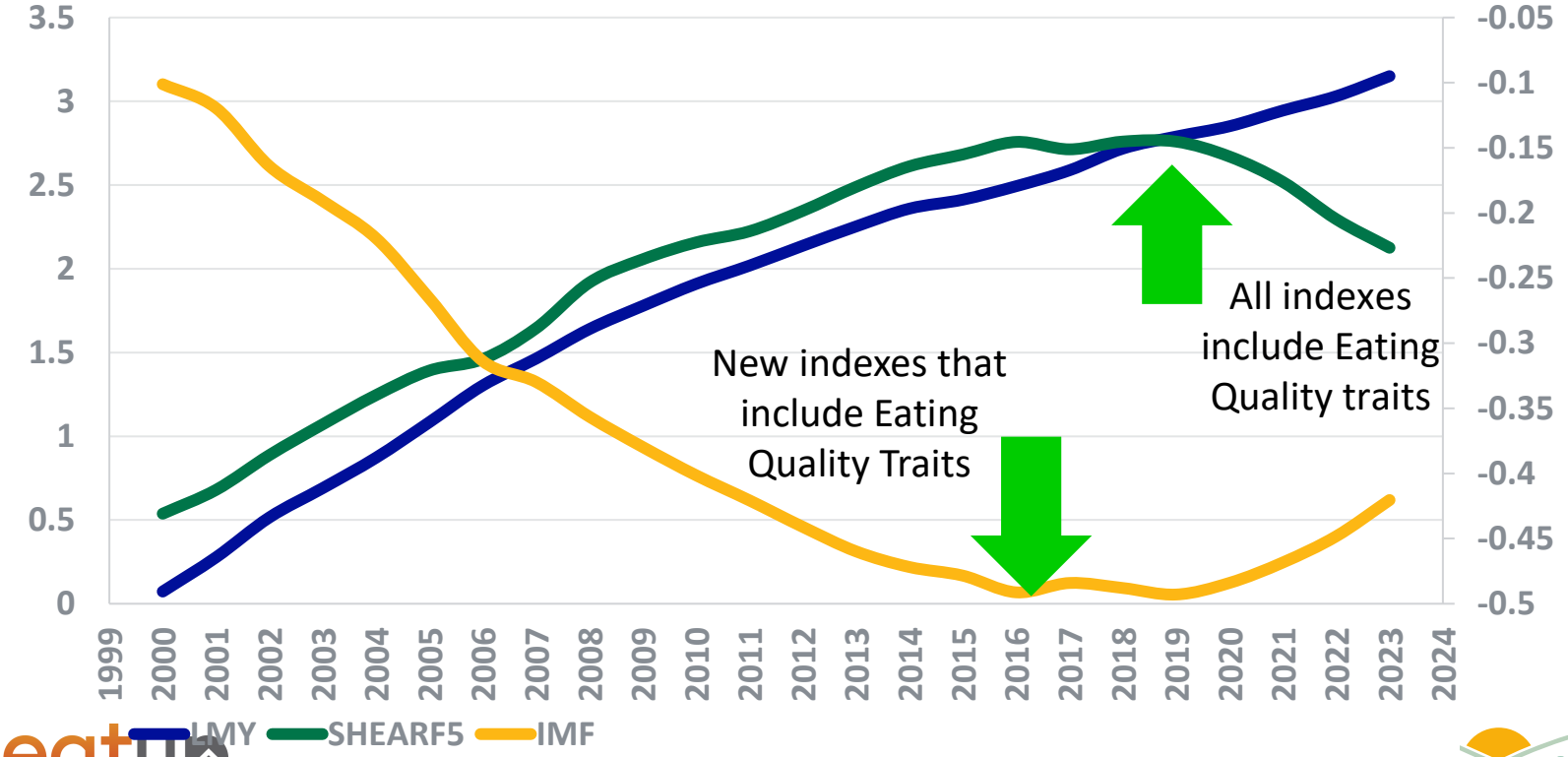
2. Genetics Research and Development: Building the Future Today

MEAT & LIVESTOCK AUSTRALIA

2.1 What have we been able to do with ASBVs for Eating Quality (EQ) Indicator Traits?



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2.1 Future Eating Quality Traits

Intramuscular Fat (IMF)

Shear Force (SF5)

Consumer Satisfaction Australian Sheep Breeding Value (ASBV)

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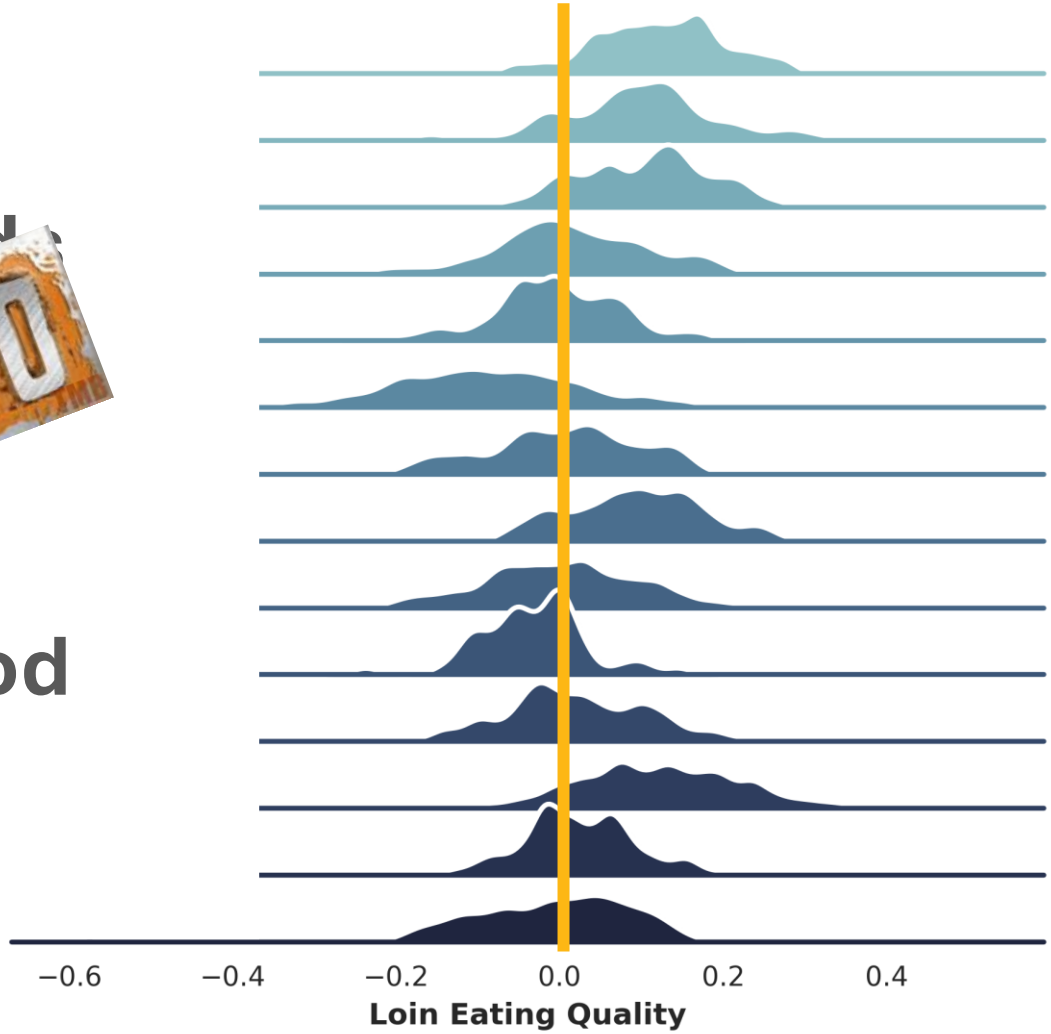
Myth: Some breed
are much b
eati
from
breed X I have good
eating quality.



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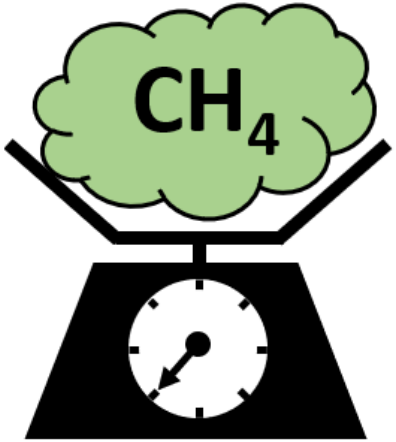
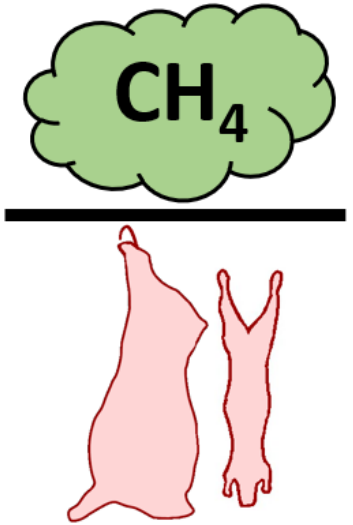
2.2 Breeding Efficient Animals



Methane
Production



Methane
Intensity

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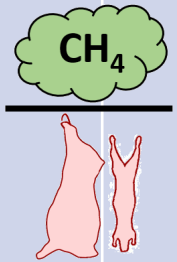
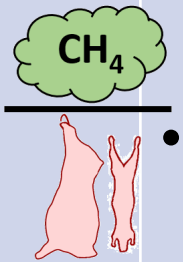
2.2 The Journey to create a breeding value

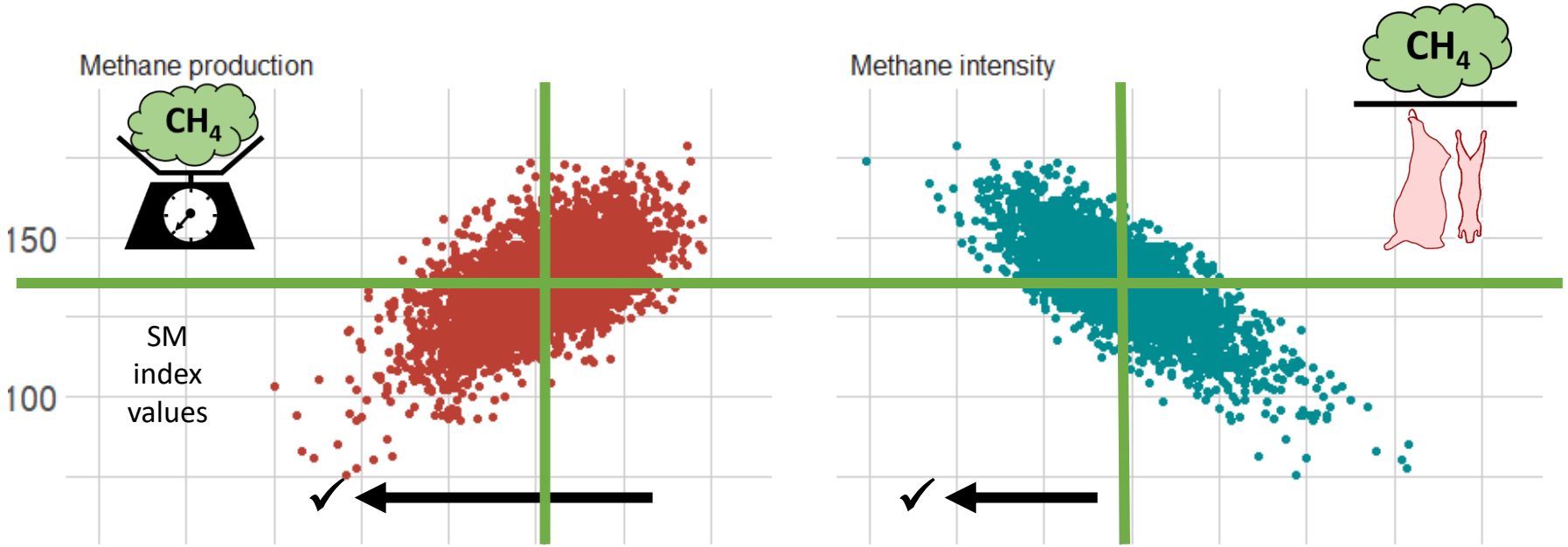
2.2 What are we doing now with our indexes?

Terminal Sire Breeds	Maternal Sire Breeds	Merinos
• Faster growth • Improved Lean Meat Yield • Better Quality Meat	• Faster growth • Lower mature size • Improved reproduction	• Faster growth • Improved reproduction • Improved wool quality and quantity • Mature size?





2.2 What are our new MERINOSELECT indexes doing?



Methane sub-index values

Methane sub-index values

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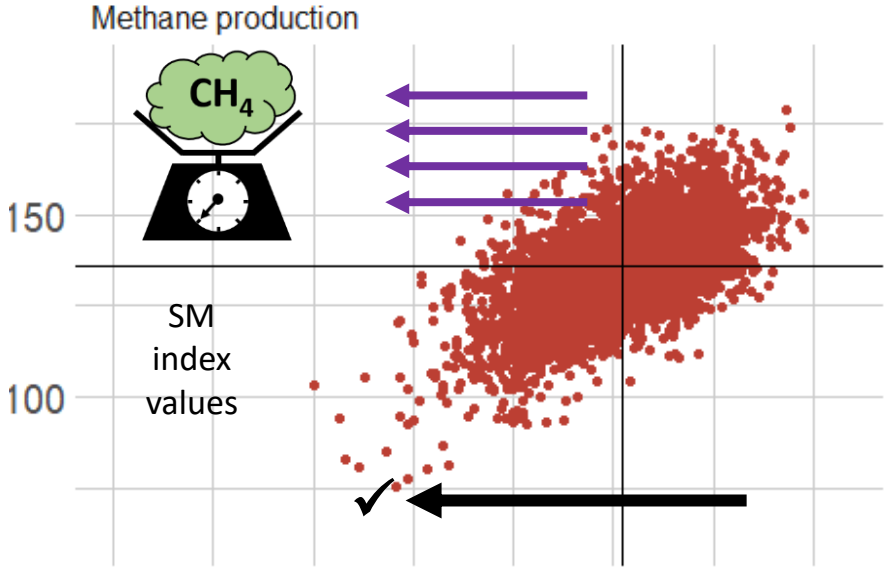
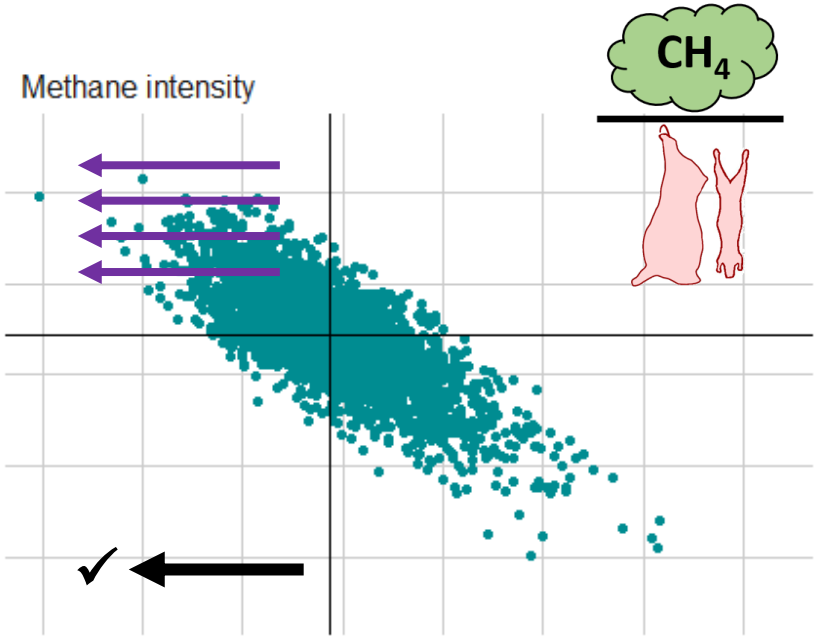
2.2 What will we be able to do with methane breeding values?



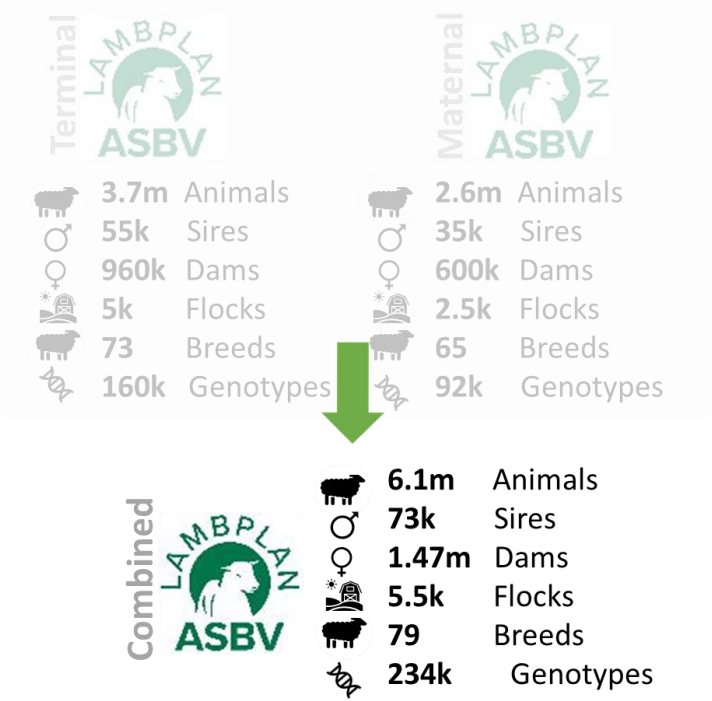
Methane sub-index values



Methane sub-index values

2.3 A Combined LAMBPLAN Analysis

- Completely comparable ASBVs for Terminals and Maternals
  - Simplify for commercial ram buyers
- Research results available in 2025
- 2026 rams sales will be using the new analysis



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3. Genetic Products: From Theory to Practice

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3.1 The Sheep Genetics Offering is expanding

ASBVs and Indexes

- Across Flock Comparison
- Use to purchase rams/semen

Genomic Only Commercial Products (Merino)

- Within Flock Ranking Only
- Less information contributing
- Use to select rams (and potentially ewes)

Flock Profile (Merino)

- Flock level snapshot
- Not individual animal
- Use to help select rams to bring in

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3.2 Genomic Only Commercial Animal Products

C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
VID	ycfw	ycuv	ysl	pwt	ywt	yfat	yemd	DP	MP	FP	yfd	ydcv	ebwr	pfec
220143	1	8	9	8	8	8	9	8	4	6	6	10	10	1
220178	10	8	7	10	10	1	2	10	10	10	10	8	4	7
220076	6	5	4	10	10	2	4	10	9	8	7	1	9	3
220224	10	1	9	4	5	3	3	4	7	7	3	8	7	3
220043	8	2	8	10	10	3	4	10	10	10	5	10	10	3
220054	4	9	1	7	7	1	1	8	7	8	9	6	1	6
220187	7	4	7	2	2	1	3	4	8	9	10	8	3	8
220217	5	7	10	6	8	7	3	6	5	4	6	7	6	10
220124	7	1	8	2	2	3	2	2	3	4	2	3	5	5
220077	5	2	8	10	9	5	2	10	8	8	3	9	10	4
220139	9	2	3	9	8	1	3	10	9	8	3	4	1	2
220211	4	4	1	4	4	4	3	7	9	10	10	4	3	10
220182	10	2	2	8	7	6	4	7	9	9	6	6	6	7
220221	8	4	6	7	8	1	2	9	9	9	7	7	7	6
220045	6	8	10	5	4	2	5	4	5	7	5	10		
220069	8	5	4	9	8	3	4	9	9	8	3	9	4	3
220205	10	2	7	7	7	8	1	9	10	8	2	4	10	4
220006	7	5	9	10	9	1	1	9	9	10	8	10	7	7
220193	5	6	7	9	8	2	3	8	6	6	7	2	4	8
220006	7	5	9	10	9	1	1	9	9	10	8	10	7	7
220002	7	3	5	4	5	5	5	7	8	9	7	9	5	10
220149	3	10	1	2	4	6	7	5	6	8	10	2	2	9
220133	5	7	2	3	5	4	3	5	6	8	8	8	4	6
220164	10	2	8	7	7	1	2	7	6	3	1	1	7	3
220056	5	8	2	7	7	1	3	8	9	10	8	10	1	8
220078	10	3	3	2	2	3	4	4	10	10	9	1	1	8
220158	7	9	2	10	10	5	3	10	10	9	5	4	3	2
220023	3	7	7	10	10	4	7	10	7	7	8	4	5	4

ID	Fleece Weight	Index
220143	1	8
220178	10	8
220076	6	5
220224	10	1
220043	8	2
220054	4	9

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3.3 Merino Flock Profile

Client:
Date: 06/03/202
Flock Drop: 5 2022

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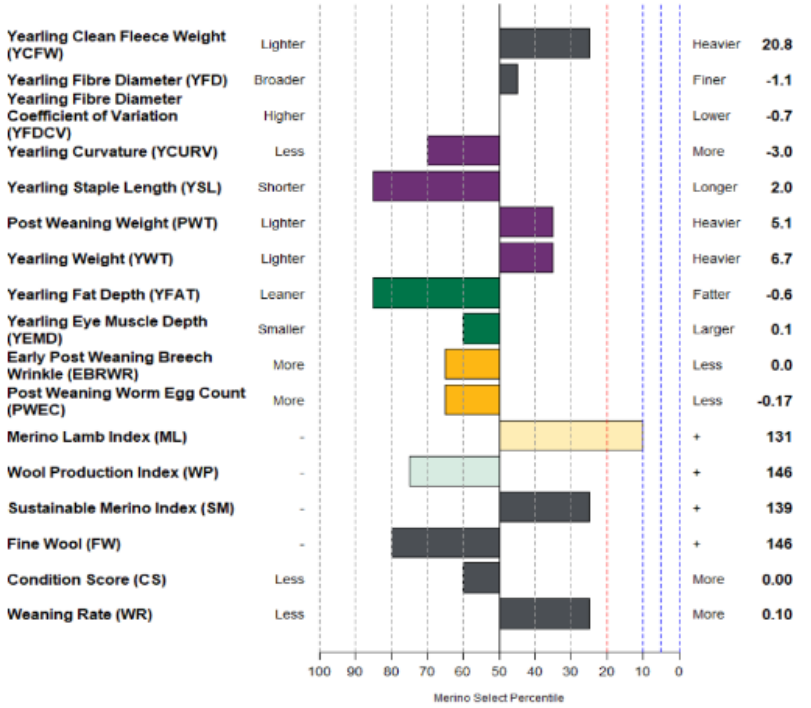
Flock Profile



Your Flock Profile values are displayed in the far right hand column. The diagram shows how your the flock compares to flock averages in the MERINOSELECT database. Note that the 100th percentile is the bottom value, 50th percentile is the average and zero percentile is top value of flocks in MERINOSELECT. If you do not see a bar for a trait or index, your Flock Profile sits in the 50% percentile. To achieve gain in desired traits or indexes, select rams with ASBVs higher than your Flock Profile value. Results are subject to change slightly as predictions update over time.

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3.4 How they all fit together

ASBVs and Indexes

Genomic Only Products

Flock Profile

3.4 What about the future of these products

ASBVs and Indexes

- 2027 there will be just 2 evaluations
- Latest and new BVs

Genomic Only Products

- Will be expanded to new breeds

Flock Profile

- Will be expanded to new breeds

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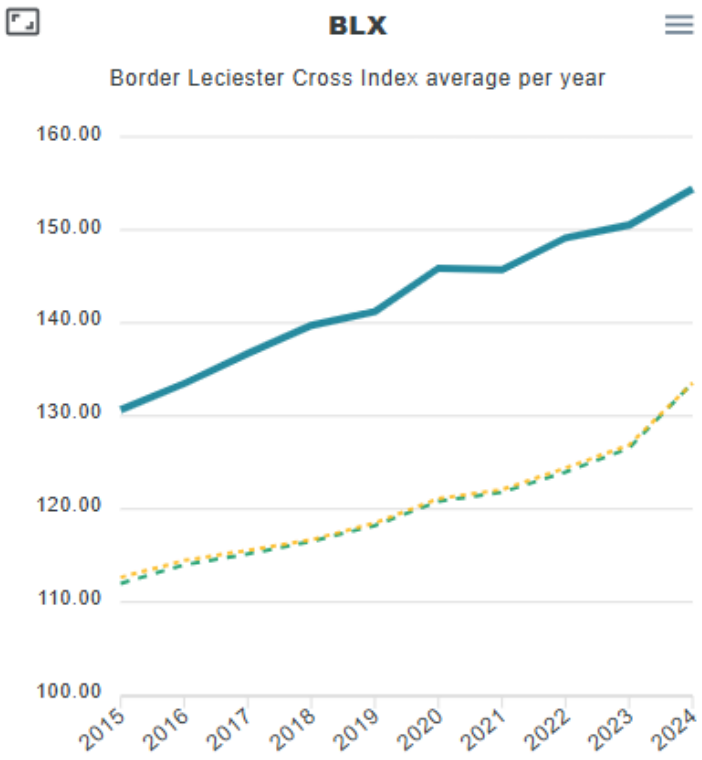
3.5 What can you do now!

1. Have a breeding objective

2. Purchase rams with a label (ASBVs and Indexes)

3. TRACK YOUR RAM TEAM!



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Key Take Homes

1. Consider the future state and make selection decisions now that set your business up for success

2. A combined LAMBPLAN evaluation is part of the journey to enable genetic products for all breeds for a range of traits

3. There are a suite of genetic products available for all businesses – ASBVs, Genomic Breeding Values, Flock Profile and ram team tracking

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Reaching out and keeping up-to-date

Peta Bradley

pbradley@mla.com.au

0419 158 449

Sheep Genetics

info@sheepgenetics.org.au

02 8055 1818

Stay up to date:
Sheep Genetics
Monthly Update
Email

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Afternoon tea

30 minutes

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Optimising ewe performance over the lambing period

Martin Beltrame

Zoetis

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Zoetis at a Glance

70+
Years of experience

100+ Countries where Zoetis products are sold	**29** Manufacturing sites	**7** Major product categories
		8 Core animal species
1,600 Approximate R&D colleagues	**4,100** Approximate field force members	**14,100** Approximate colleagues worldwide

We provide:

Medicines, Vaccines, Diagnostics, Biodevices, Genetic tests & Precision animal health

Kristin Peck
Chief Executive Officer

DRIVEN TO CARE

Note: Facts and figures shown are as of Dec. 31, 2023

[1] *Excludes revenue associated with Client Supply Services and Human Health, which represented 1% of total 2023 revenue.*

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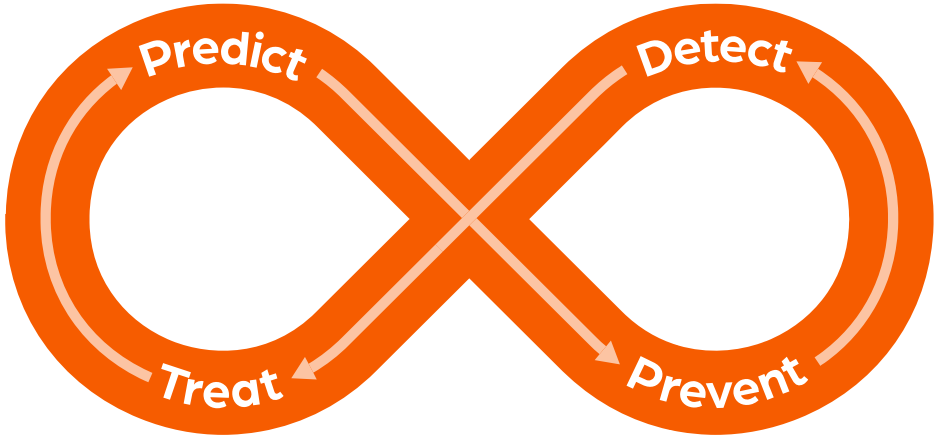
Innovating Across the Continuum of Care

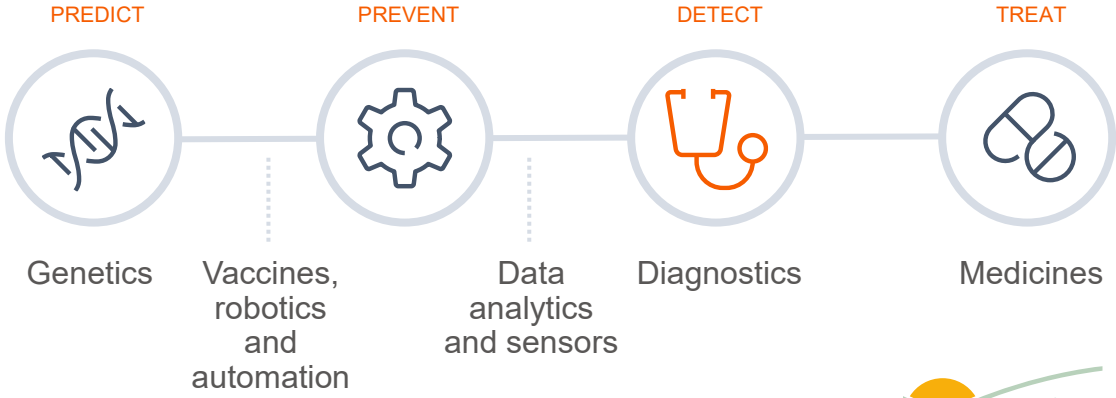
Globally, Zoetis invested

~AUD$950m

in Research & Development in 2023

- 14% increase from 2022





Increased AUSTRALIAN manufacturing capabilities

Recent purchase of both Jurox and the Parkville CSL Manufacturing site

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Pre-lambing considerations
'It all starts with the ewe'

How can producers optimise pre-lambing management?

- Provide adequate nutrition
- Use a pre-lambing booster to maximise colostrum.
- Vaccinate to protect the ewe
- Manage internal parasites carefully over the pre-lambing period
- Ensure trace mineral supplementation is adequate.

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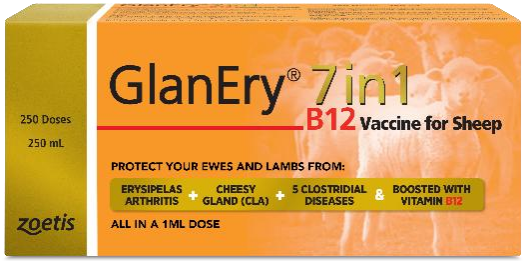
The importance of good colostrum and vaccination



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GOOD
ewe management

=

GOOD
colostrum

=

GOOD
lamb immunity

Passive transfer of immunity

Where does colostrum come from?

Getting the best out of pre-lambing vaccination

Colostrum is the first milk.

LIQUID GOLD; KEEPING LAMBS ALIVE.

- Ewe transfers the antibodies circulating in the blood to the first milk which can then be absorbed by the lamb shortly after birth.
- Usually, the lamb needs to drink in the first 12 hours of life with most of the absorption occurring in the first 6 hours post lambing.
- This provides transient disease protection from antigens that the ewe has recently been exposed to.

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Understanding why colostrum is important

- The ruminant placenta does not allow the transfer of immune cells
- Lambs are unable to develop their own antibodies until one month of age.
- The lamb is essentially borrowing the mother's immune cells until their own immune system develops

Lambs that do not receive adequate colostrum are more likely to die

- Failure of passive transfer (FPT) i.e. not enough antibodies consumed via colostrum, is associated with lamb losses
- Failure of passive transfer occurs due to the ewe not producing enough antibodies and/or lambs not drinking adequate quantities of colostrum in the right timeframe
- One study look at lambs that died of 'natural causes' and found that 50% of the

We can use vaccination to improve colostrum production in the ewe.

- In sheep colostrum production begins 2–3-weeks pre-lambing.
- Stops abruptly at time of lambing to allow development of milk
- We can use vaccination at the right

VACCINATION =
SUPER CHARGED COLOSTRUM
= BETTER LAMB SURVIVAL

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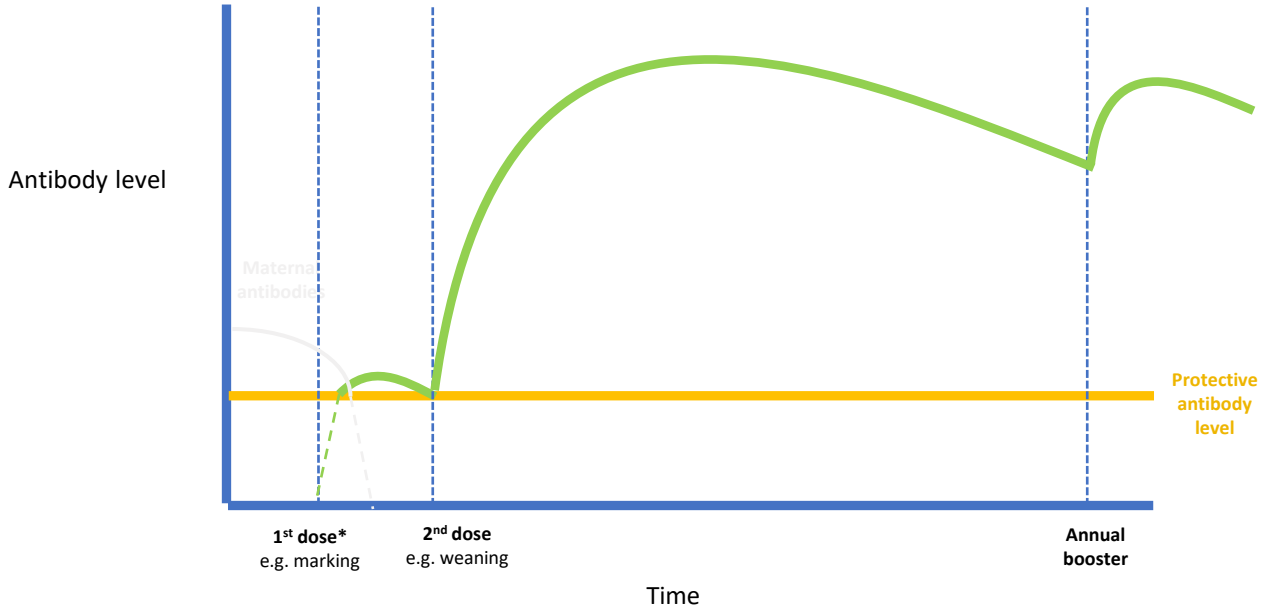
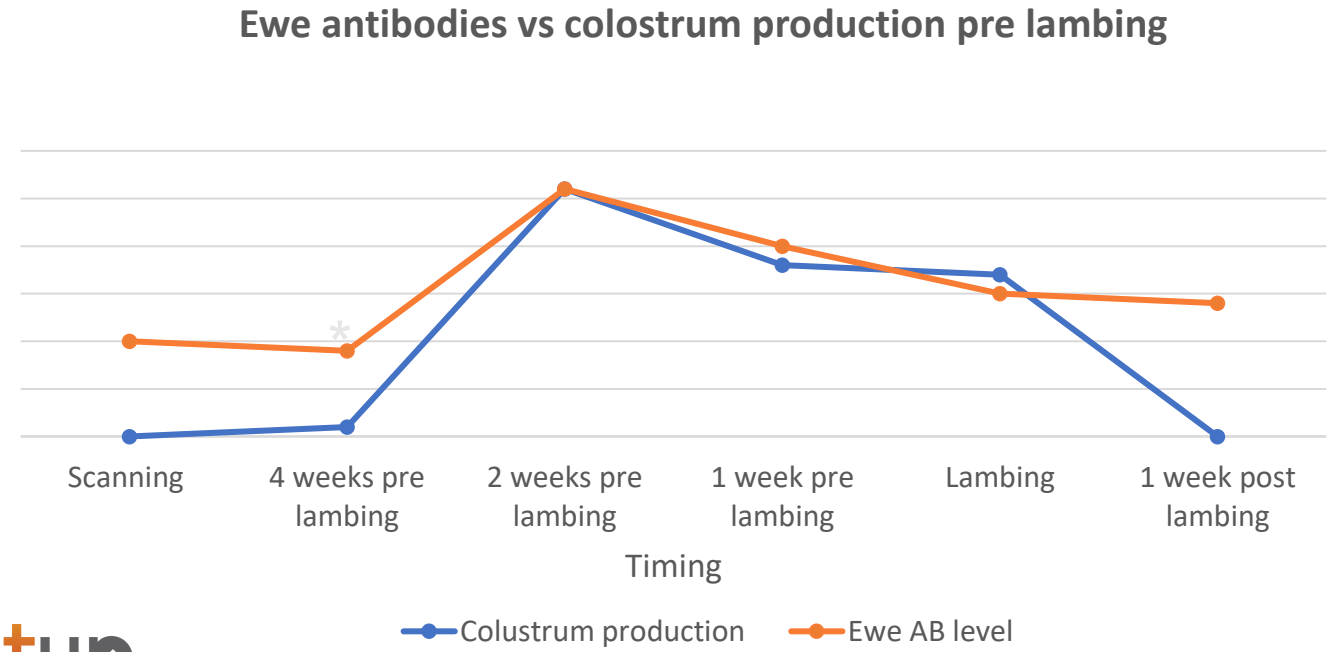
PRINCIPLES OF VACCINATION



This is a schematic representation to demonstrate the principles of vaccination. Actual levels of antibody following vaccination will vary from vaccine to vaccine and animal to animal.

*the first dose of vaccine may not confer protective immunity

Producers can utilise vaccination timing to help produce super-charged colostrum



* Pre-lambing vaccination given.

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Beef cattle and colostrum

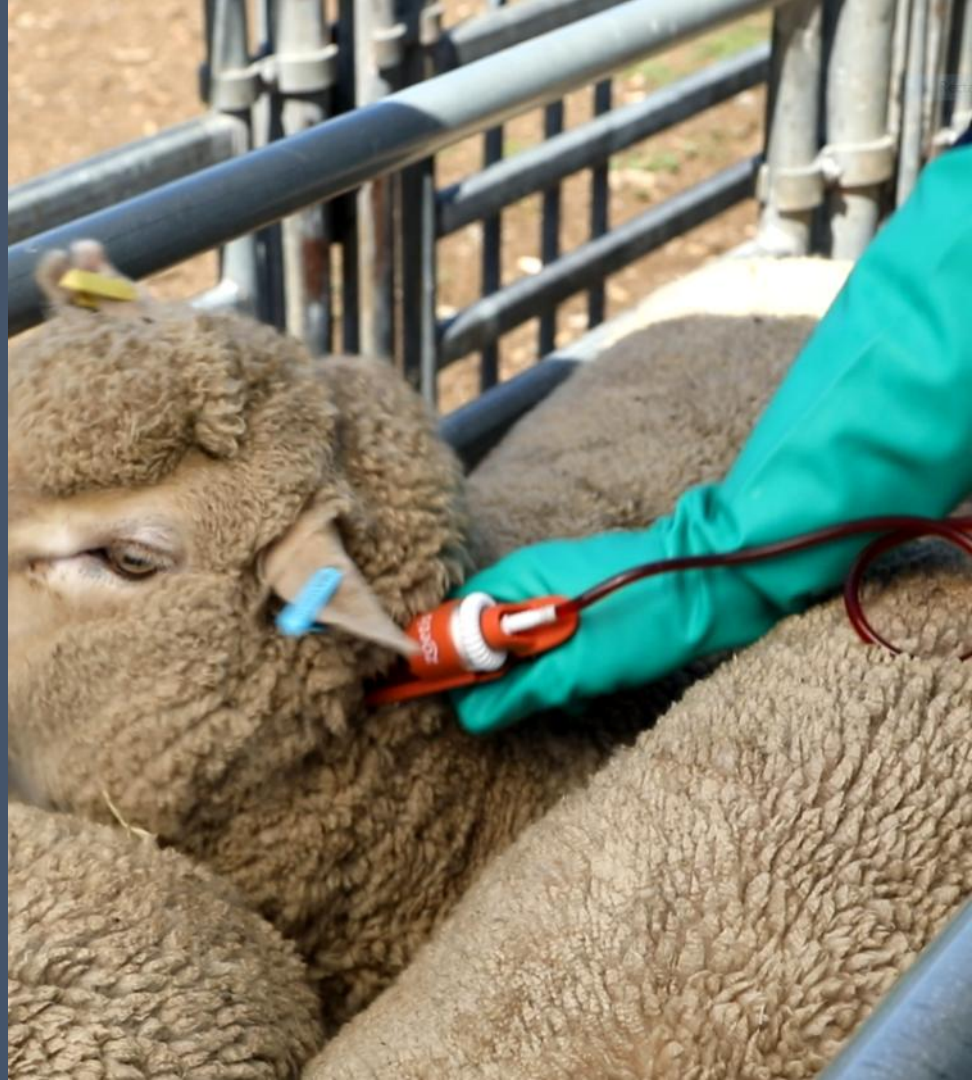
- Principles are the same in cattle as in sheep
- Bigger focus on Leptospirosis prevention in cattle than sheep
- Colostrogenesis starts slightly earlier in cattle than in sheep

What vaccines are important pre-lambing to both protect the ewe AND protect the lamb

Clostridial diseases

CLA
(Caseous lymphadenitis or cheesy gland)

Erysipelas Arthritis



Clostridial diseases

Tetanus

- Bacterial spores abundant in the environment
- Marked lambs at high risk if unvaccinated – spores gain access through wounds
- Sudden death/stiff paralysis, signs typically post history of a wound

Pulpy kidney

- Bacteria in the environment and in the gut of healthy lambs
- Sudden death associated with changes in diet
- A booster vaccination is recommended prior to periods of risk

Clostridial Diseases costs the Australian sheep industry

$32MIL

each year[1]

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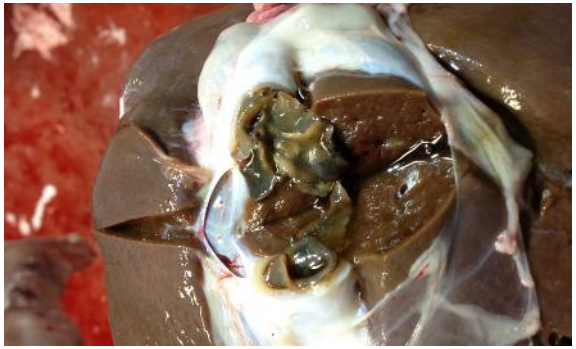
Clostridial diseases continued.

Blackleg

- Bacterial spores in the environment enter through cuts in mouth/wounds and lodge in muscles
- Bruising → spores germinate and produce toxins → death
- Dark red to black muscle (gangrenous myositis)



Black disease

- Bacterial spores present in environment and body tissues of lambs, including liver
- Liver fluke associated due to migrating fluke allows spores to germinate, resulting in death
- Can also be associated with hydatids

Malignant oedema

- Introduction of the organism from the environment and the production of a small area of dead tissue
- Wounds, e.g. injuries, marking, fighting in rams (swelled head)

Caseous Lymphadenitis (CLA) or Cheesy Gland

- Highly contagious bacteria that is widespread in sheep and goat herds (*Corynebacterium pseudotuberculosis)*
- Spread via respiratory exhalation or from ruptured superficial abscesses
- Spread primarily at shearing/yarding
- Bacteria can survive for months in environment – contaminates yards and dips
- Often a hidden disease with abscesses affecting major internal body organs and lymph nodes – may be some coughing

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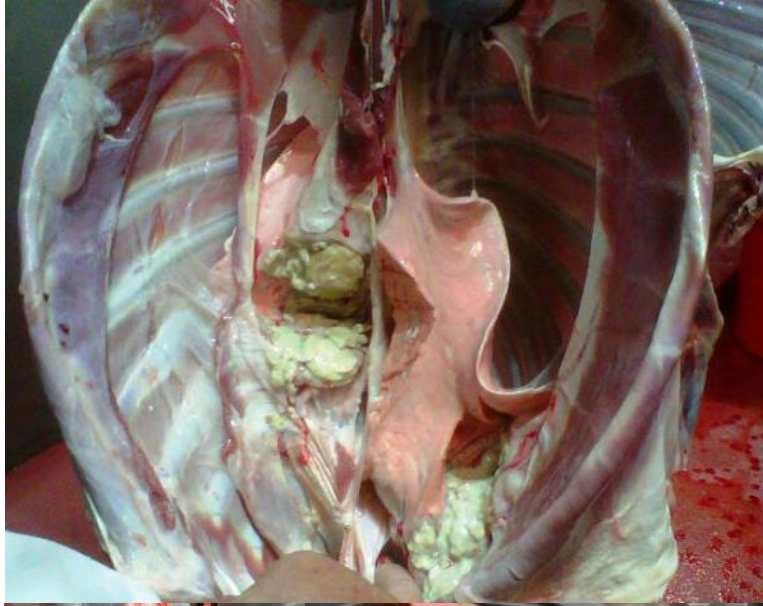
The on-farm impact of CLA

Pus filled abscess forms at the infection site causing

- Ill-thrift, lethargy and weight loss in lambs and sheep
- Meat quality issues
- Infertility & ram sterility
- Reduction in clean wool cut
- Zoonotic disease (can infect humans)



The economic impact of CLA

- Chronic losses on farm include reduced weight gain and reduced wool production.
- This disease accounts for **almost half** of all abattoir condemnations.

CLA infected sheep have a

4–7%

reduction in clean wool cut in the first year of infection[4]

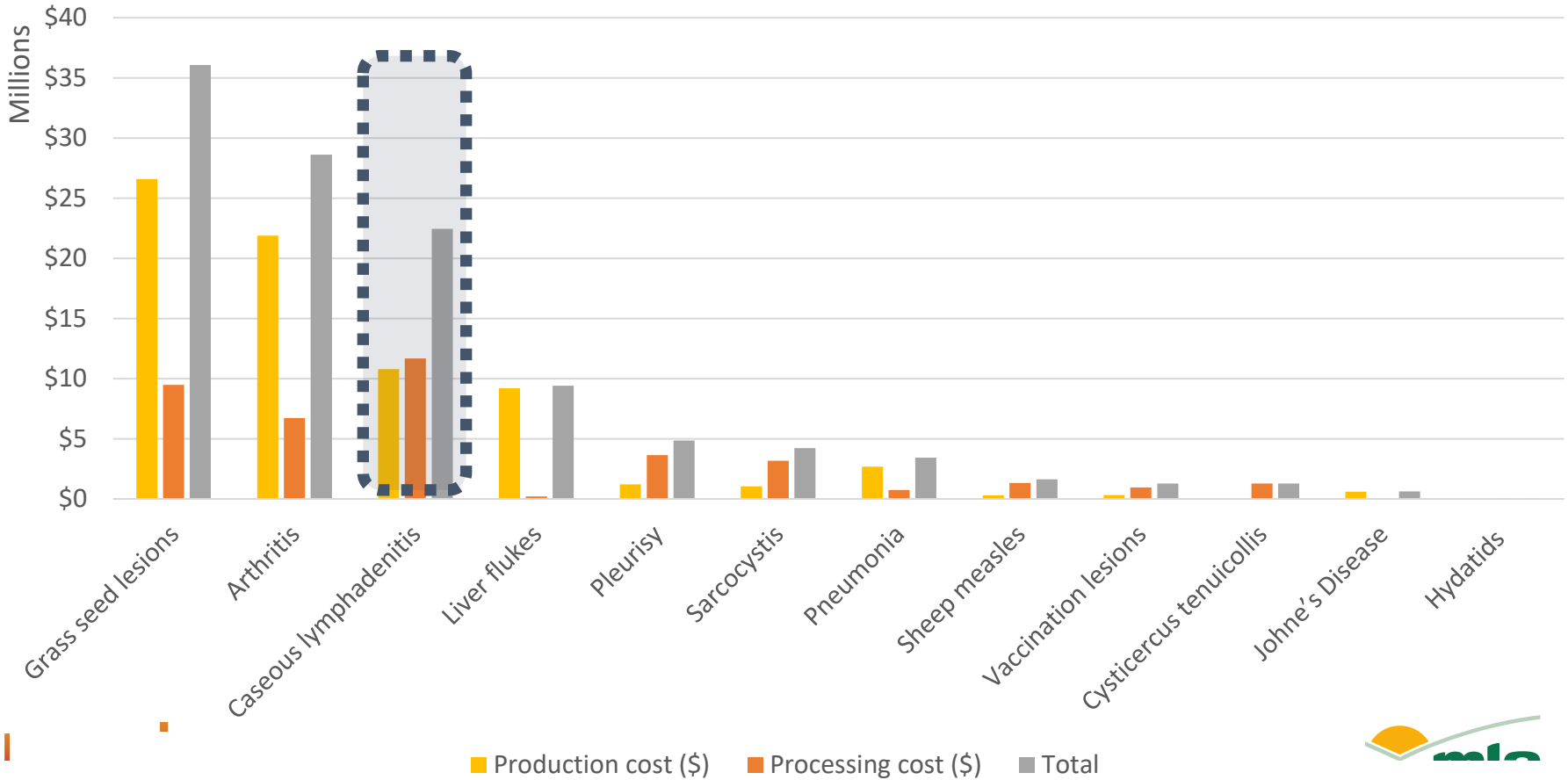
Cheesy Gland (CLA) costs the Australian sheep industry

$18MIL

each year[1]

Almost **50%** of 2+ year old sheep lines in abattoirs are shown to be infected with CLA

NSHMP Annual cost of disease

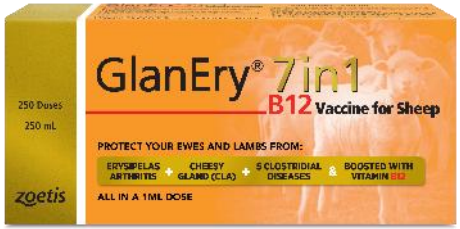


GlanEry 7in1 B12 efficacy against Cheesy Gland (CLA)

Field data:

- Looking at flocks in an Australia wide study, a compliant long term vaccination program for CLA using Zoetis vaccines will bring down the prevalence of disease to around 3% vs 29% in non-vaccinated flocks
- Data also shows that non-compliant vaccination program did not significantly reduce disease prevalence

Recent CLA challenge studies showed that GlanEry 7in1 B12 vaccine is highly efficacious against CLA infection



Erysipelas Arthritis

- Soil borne bacteria that infects many species, including sheep, pigs, kangaroos, rodents, insects and birds
- Zoonotic disease (can infect humans)
- Most common cause of arthritis in lambs
- Bacterium enters via the umbilical cord or wounds, then localises in leg joints causing inflammation and arthritis
- A large proportion of cases are not obvious (sub-clinical)

Erysipelas Arthritis

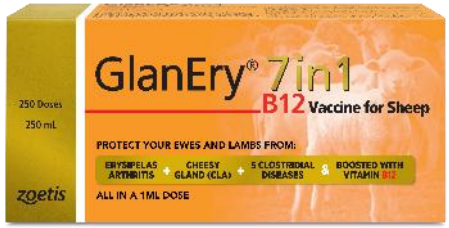
- Infection occurs in the paddock through wounds at marking, mulesing, dipping, shearing/crutching, umbilical cord and from the ewe's throat when cleaning afterbirth
  - Increased deaths and culls through ill thrift and lame lambs
  - Increased tail in the flock
  - Lambs that are unsalable or unfit to load (welfare issues)
  - C… …toir
  - C…

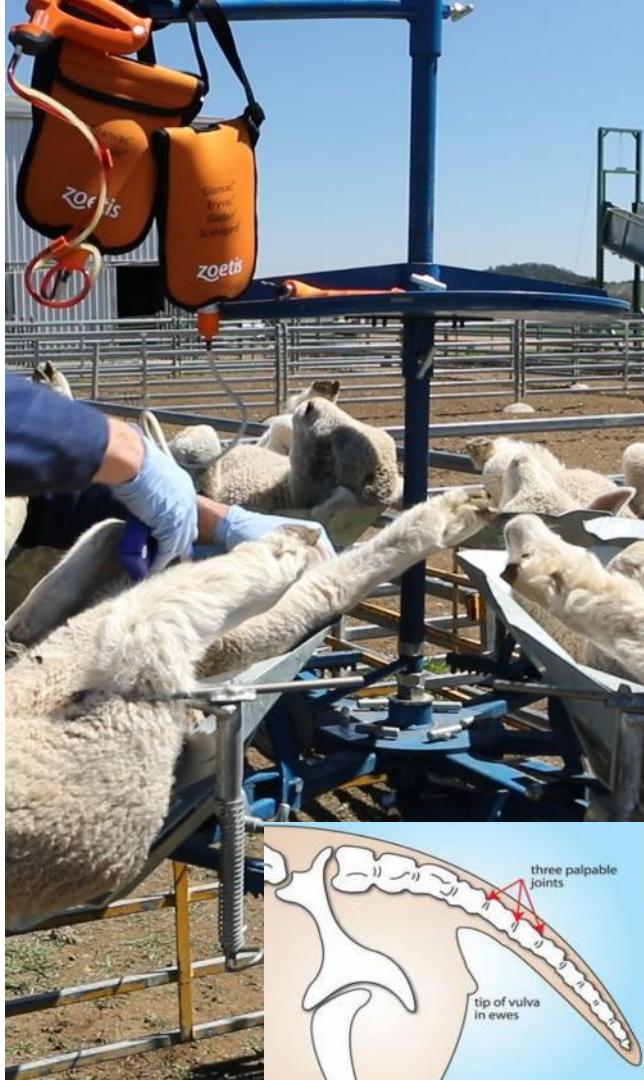
1.4% of lambs born, die before weaning or are culled due to arthritis[1]

me…

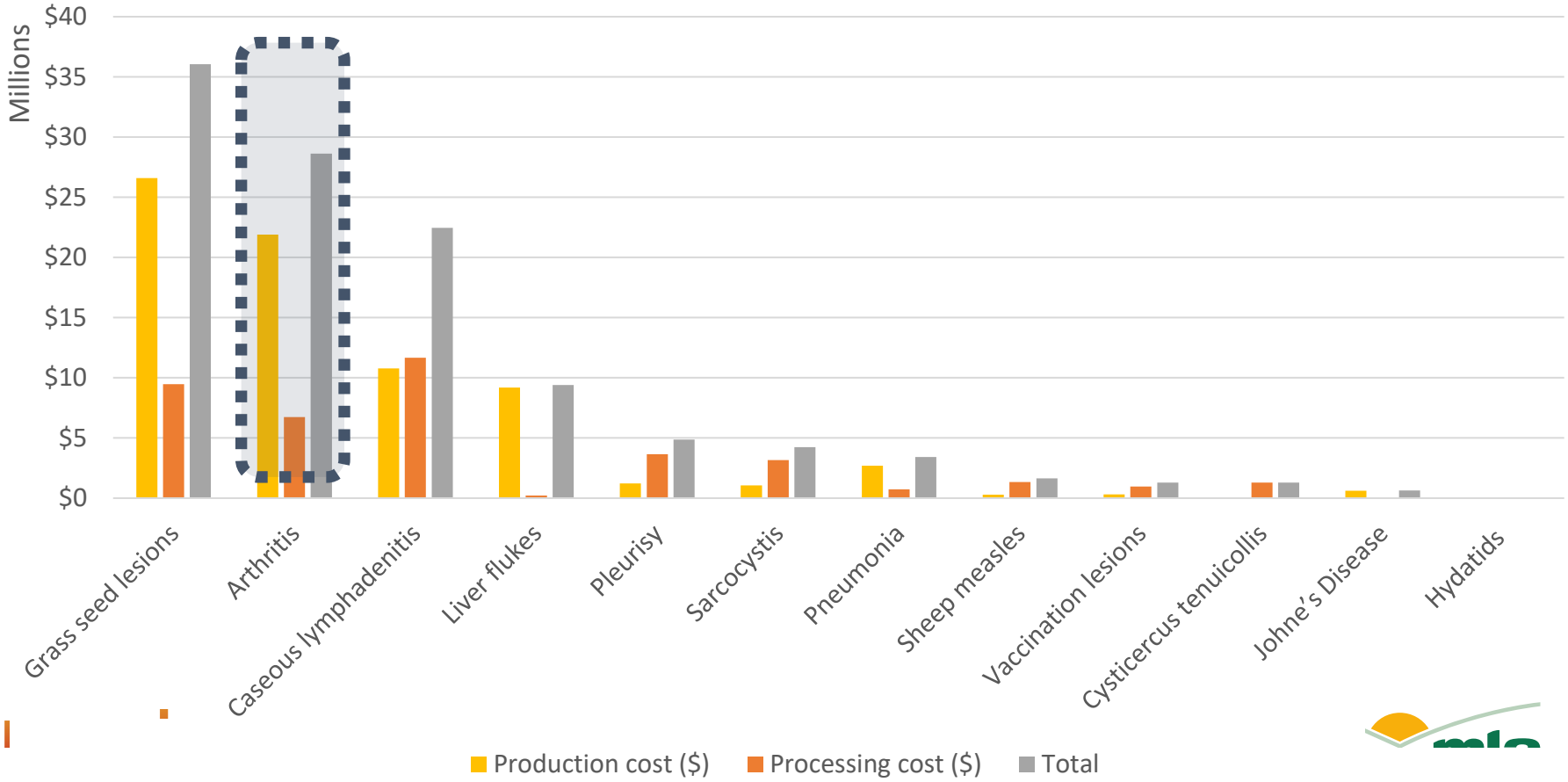
Managing erysipelas arthritis on farm requires a multifactorial approach

- Ensuring tails are docked at the correct length (3rd palpable joint)
- Good hygiene and pain relief at marking
- Avoid marking in muddy yards – ideally put lambs straight back onto the paddock post mark
- Vaccination of ewes pre-lambing will prevent erysipelas arthritis in young lambs
- Vaccination of lambs at marking and weaning will prevent erysipelas arthritis in weaner lambs





NSHMP Annual cost of disease



Effective parasite management

Don’t forget about worms!

Pre-lambing ewes have a reduced ability to fight parasites

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Faecal counts pre lambing

Building a picture to implement a strategy

- Good practice
- 6-8 weeks pre lambing
- Larval differentiation often pays off
- One piece of a bigger puzzle

Shorting acting or long acting (LA)?

Short acting

- Greater range of actives and combination products available
- Reduces selection for resistance
- Requires low paddock contamination

Long acting

- Limited actives and single active products only
- More heavily selects for resistant parasites
- Requires combination drench therapy
- Gives persistence which can help reduce paddock contamination for lambs

How to effectively use a LA product

- Only readily available product on the market is moxidectin
- Considerable production benefits in the face of high paddock contamination
- Primer and tail cutter should be effective short acting products

Priming drench

+

Long acting moxidectin
Sheep guard LA

FECS 30 60 90 days

Tail cutter

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LA Moxidectin use pre-lambing

Care must be taken in the timing of moxidectin LA

- Timing (Ideally 5 weeks pre-lambing)
- Lipophilic = loves fat
- Sheep milk has a high concentration of fat
- Realistic expectation of moxidectin reducing re-infestation

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Short acting drench selection

The most important drench decision you will make all year

- What works for you? Drench checks and FECRTs
- Use combination drenches
- Rotate between combination products

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New active dual combination

Q-drench

Powerful 4-way combination drench

Dectomax V

Only dual active injectable drench avail ralia

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Drenching Beef Females

- 1st and 2nd Calvers in Autumn herd require a drench containing a ML in Dec/Jan
- Adult cattle have strong resistance to Ostertagia
- Pre-calving drench is not a routine treatment unless indicators for treatment are present
- Injectable formulations result in higher blood levels of the active ingredient and more reliable dosing

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Summary

- Nutritional management is of vital importance to ewes around lambing
- Colostrum is a key component of lamb survival.
- Sheep producers can utilize pre-lambing vaccinations to improve colostrum.
- Drench ewes prior to lambing
- Trace mineral supplementation can reduce morbidity around the lambing period.


What questions
do you have?

ACCELERATE
YOUR PRODUCTIVITY WITH GENETICS

Check out MLA's new genetics hub

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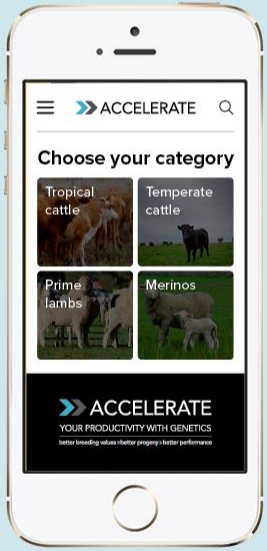
No jargon. No complexity. Just a clear look at how better breeding values can help you accelerate the productivity of your herd or flock

How-to videos to find sires on BREEDPLAN/ Sheep Genetics

How-to videos to get started with breeding values

How-to videos on shopping for a high-performing sire



'Can you Pick the Performer' videos

Producer case study videos

Further learning and resources

genetics.mla.com.au

What's next after today's meatup FORUM ?

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PRODUCER DEMONSTRATION SITES

allow producer groups to apply research on farm while at the same time grow their knowledge and skills.

mla.com.au/pds

What's next after today's meatup FORUM ?

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PROFITABLE GRAZING SYSTEMS

matches

Small groups of producers who want to improve their whole-farm performance

+

Coaches who share their knowledge, skills and experience

+

Practical and relevant courses including: feedbase, reproduction, business, people, value chain

mla.com.au/pgs

What's next after today's meatup FORUM ?

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EDGE WORKSHOPS

help producers gain knowledge and skills to improve their livestock enterprises.

Which one will you try first?

Business EDGE

Breeding EDGE

Nutrition EDGE

Grazing Land Management

mla.com.au/edge

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Join 50,000 livestock producers and sign up today.

FREE to levy-paying red meat producers

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- ✓ weekly e-newsletters with latest market and industry news
- ✓ the opportunity to vote at MLA's Annual General Meeting
- ✓ invitations to events throughout Australia.

Sign up at
mla.com.au/membership
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Networking drinks and canapes

60 minutes

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