

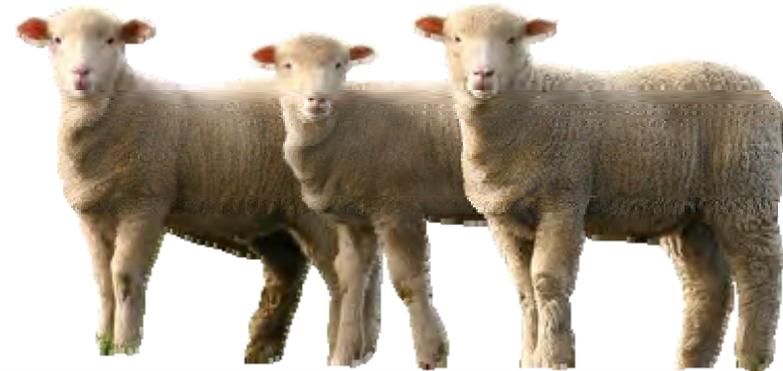
# It's ewe time!

Making More From Sheep



## Aussie lamb – the worlds best

Kelly Pearce, David Pethick, Lis Pannier,  
Graham Gardner, Alex Ball



Event partners:



Event supporters:



State primary industry agencies

# Summary

1. Why Aussie lamb is the best!
1. How LMY and EQ will drive the sheep industry into the future
2. How does making changes in live animal impact on LMY and EQ?



# Back to basics – the CONSUMER

## Main factors influencing purchase of lamb

- Point of purchase:
  - PAST: appearance, sensory, safety
  - FUTURE: ABOVE PLUS nutrition, health, value for money

## EAST vs WEST –markets into the future

- 50% Australian lamb and sheepmeat is exported
  
- WEST:
  - Don't want to eat more meat protein per head
  - Challenge: increase proportion of lamb in diet
  
- EAST:
  - Increased GDP= demand more protein in diet
  - Challenge: to encourage lamb as protein of choice
  - Limited by traditional food type and cooking methods

# Increase and maintain demand into the future

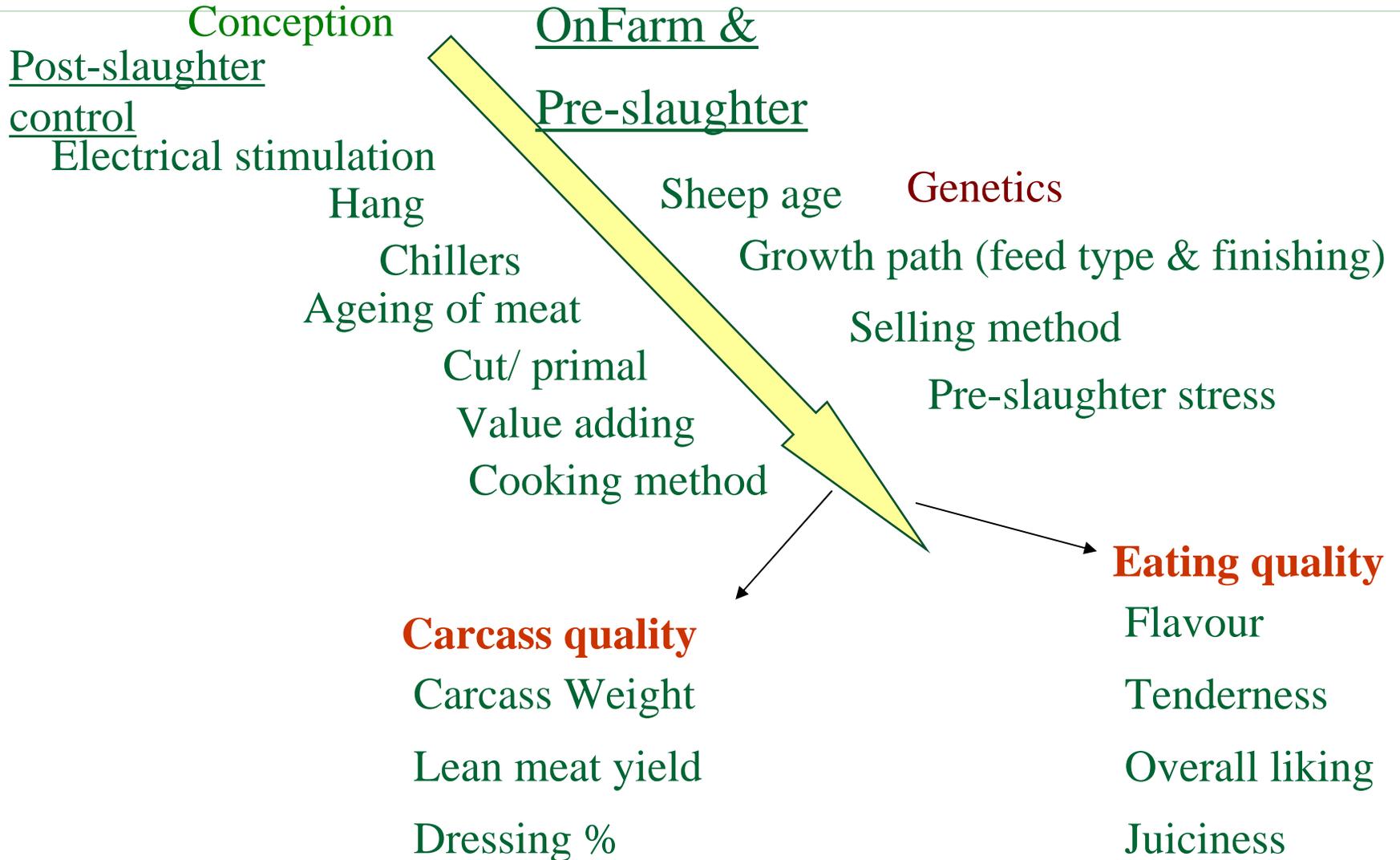
- Is lamb a staple or niche product?
- Give consumers very good reason to buy lamb!

Promote lamb as a source of nutrients & good for our health

Promote lamb as a guaranteed high eating quality- value for money

# Critical Control Points

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# Assuring Eating Quality – MSA Lamb

- Producers role
  - ✓ Management (old)
  - ✓ Genetics (new)
- Processors role
  - ✓ Managing chillers (old)
  - ✓ Electrical stimulation (new)
- Retailer role



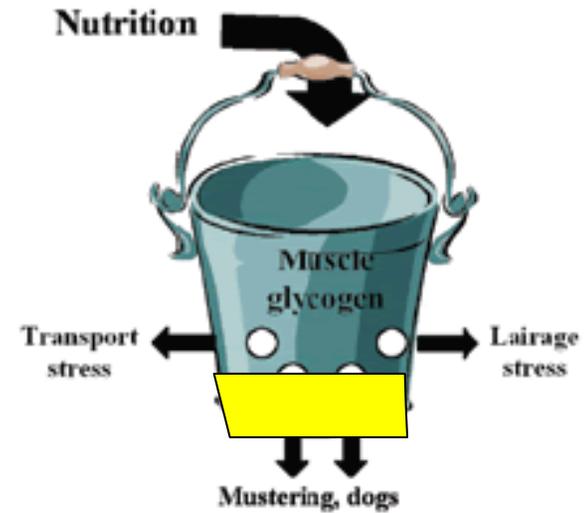
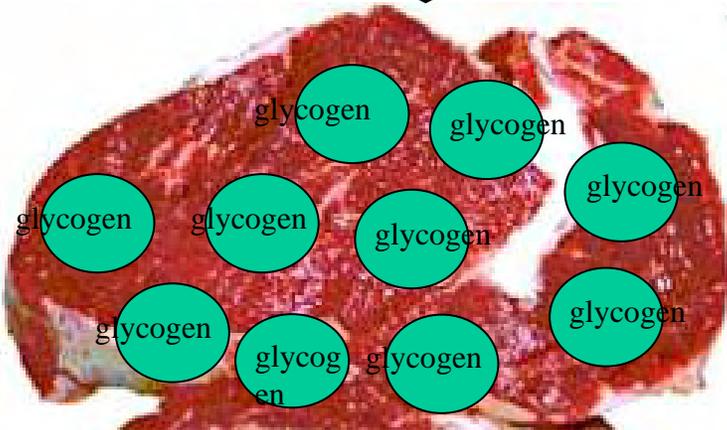
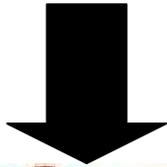
**Eating quality is a supply chain issue  
delivered through MSA LAMB!**

# Producers role 1 – guarantee muscle sugar/glycogen content

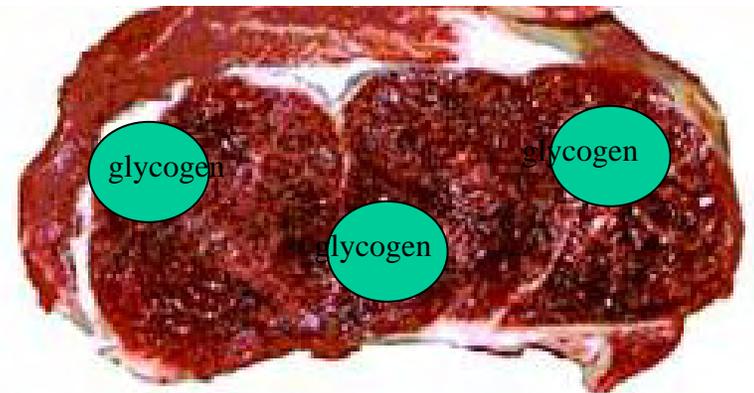
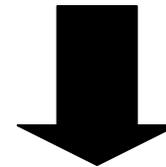
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Bucket 50-100% full

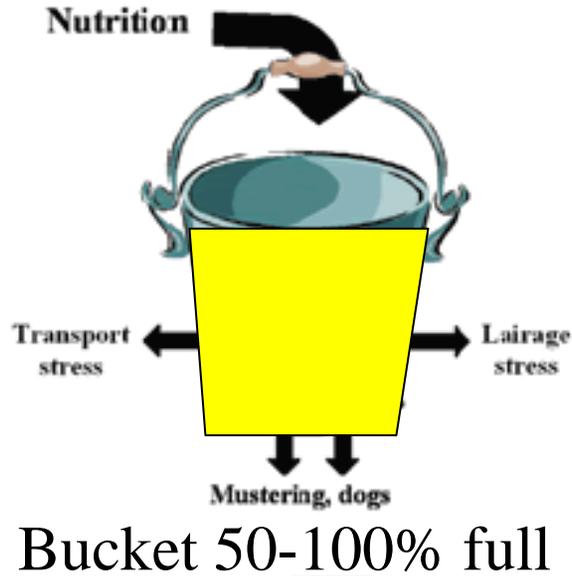


Bucket 0-50% full

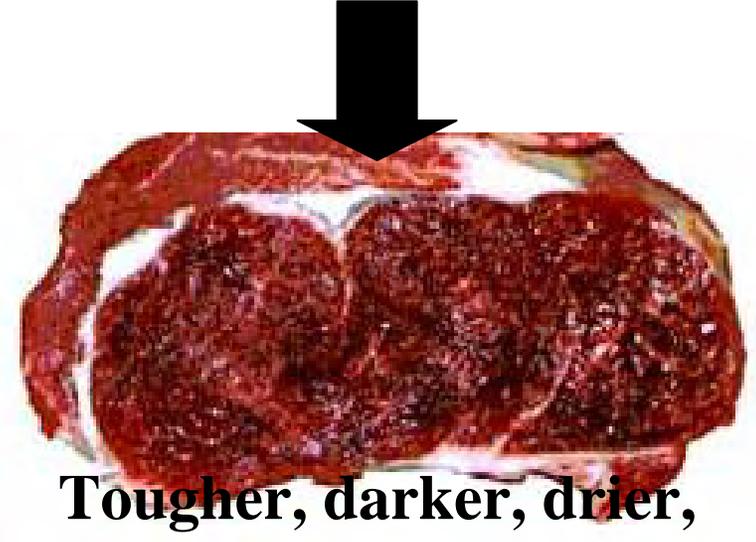
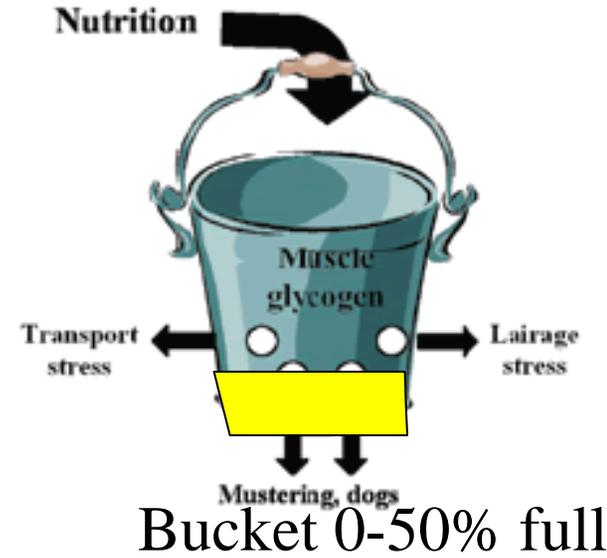


# Producers role 1 – guarantee muscle sugar/glycogen content

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**Tender, lighter, juicier, lower spoilage**



**Tougher, darker, drier, higher spoilage**

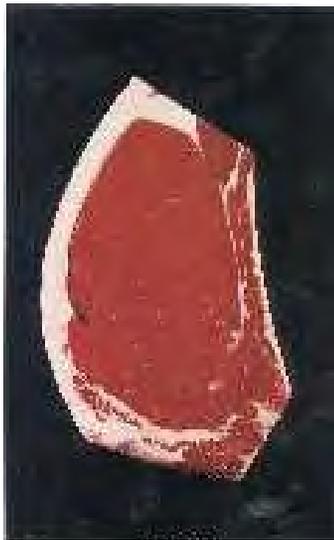
## Producers role 1 – guarantee muscle sugar/glycogen content

- Muscle sugar or glycogen
  - = nutrition in the last 2-3 weeks
  - Xbred – 100gm/d
  - Merino – 150gm/d
  - Minimise stress pre-slaughter
- 
-  Muscle genetics for Merinos/Maternals

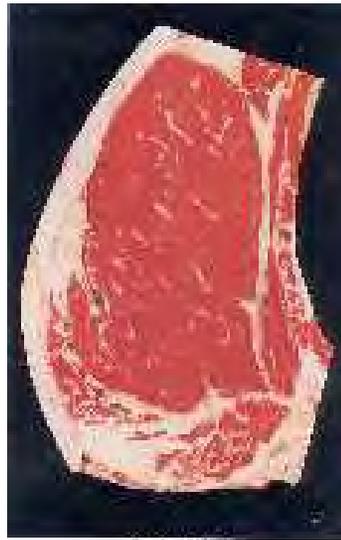


# Producers role 2 – intramuscular fat ? NEW

- Fat content: ideally 4-6% Intramuscular fat
  - Deposit IMF instead of Connective tissue



1%  
IMF



4%  
IMF



10%  
IMF

**FAT  
SCORE 2**



## Producers role 3 – control fatness in slaughter lambs

- >6mm GR (Score 2)
- Score 2/3 ideal
  
- Fat score during finishing
  
- **GROW MEAT NOT FAT!**





# Lamb 'lean' is expensive



# We need to push lean meat yield

## Beef is cheaper !



**Tenderloin**

**\$38.99/kg**



**Cube Roll**

**\$30.00/kg**

# Maximising profits

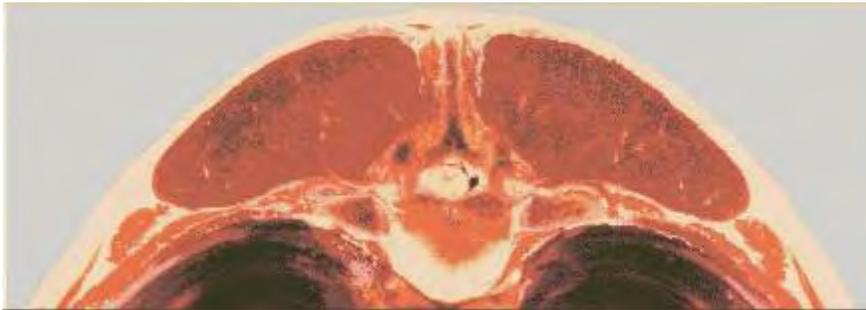
Value & efficiency = Lean meat yield

- Very important for farm profitability
  - Grow muscle not fat
  - Score 2 to 4 =extra 40kg of feed
- Little return on fat for processor
  - Extra cost of trim = labour, disposal
- Consumer satisfaction - consumers prefer meat NOT bone and fat !





	LAMB A (Score 2)	LAMB B (Score 4)
Carcase Wt	23kg	23kg
\$/kg Carcasse wt	\$5.00	\$5.00
\$/Lamb	\$115	\$115
LMY	57%	48%
Total lean meat	13.1kg	11.0kg

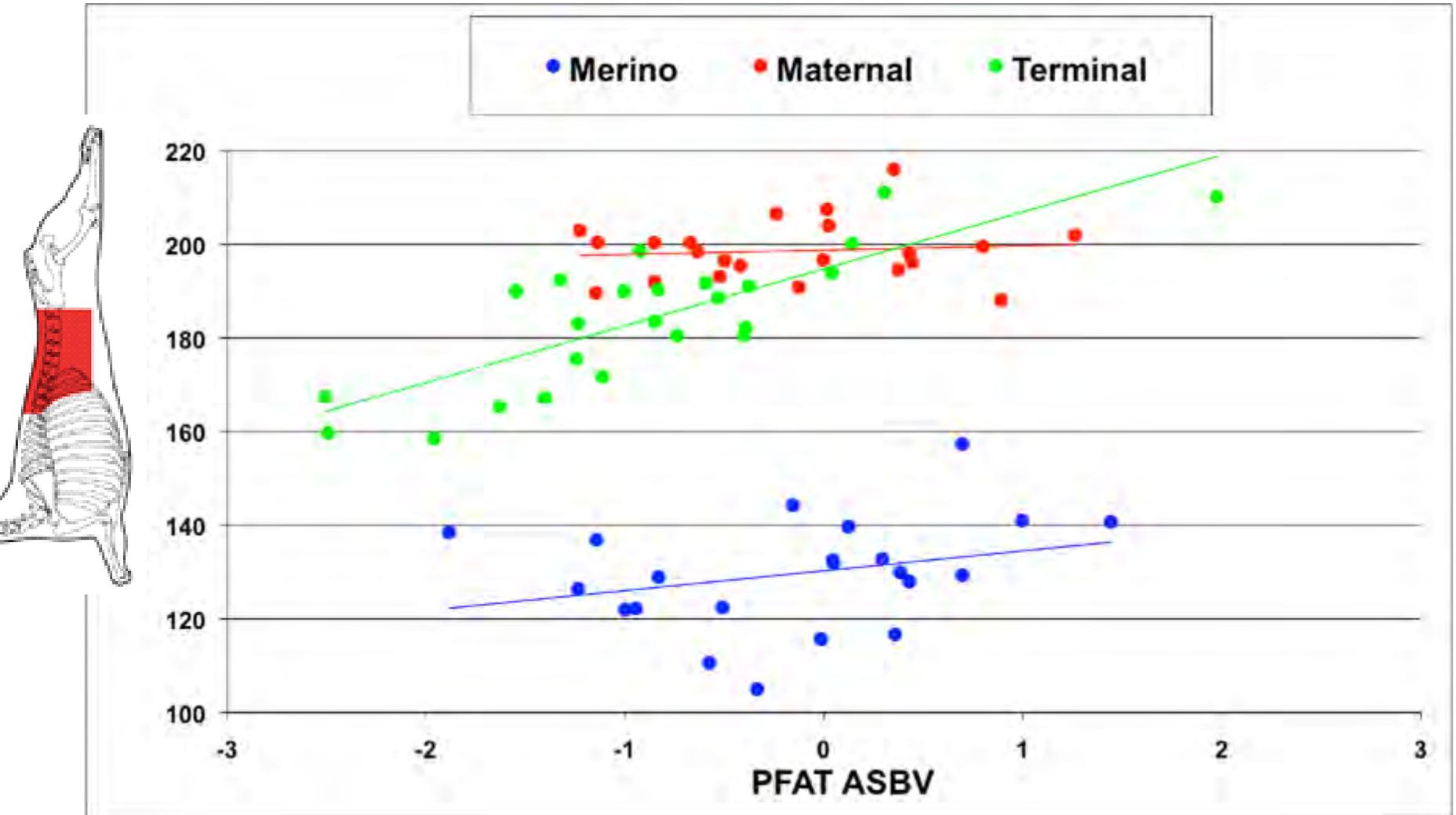


## Big difference in carcass value

At same carcass weight:

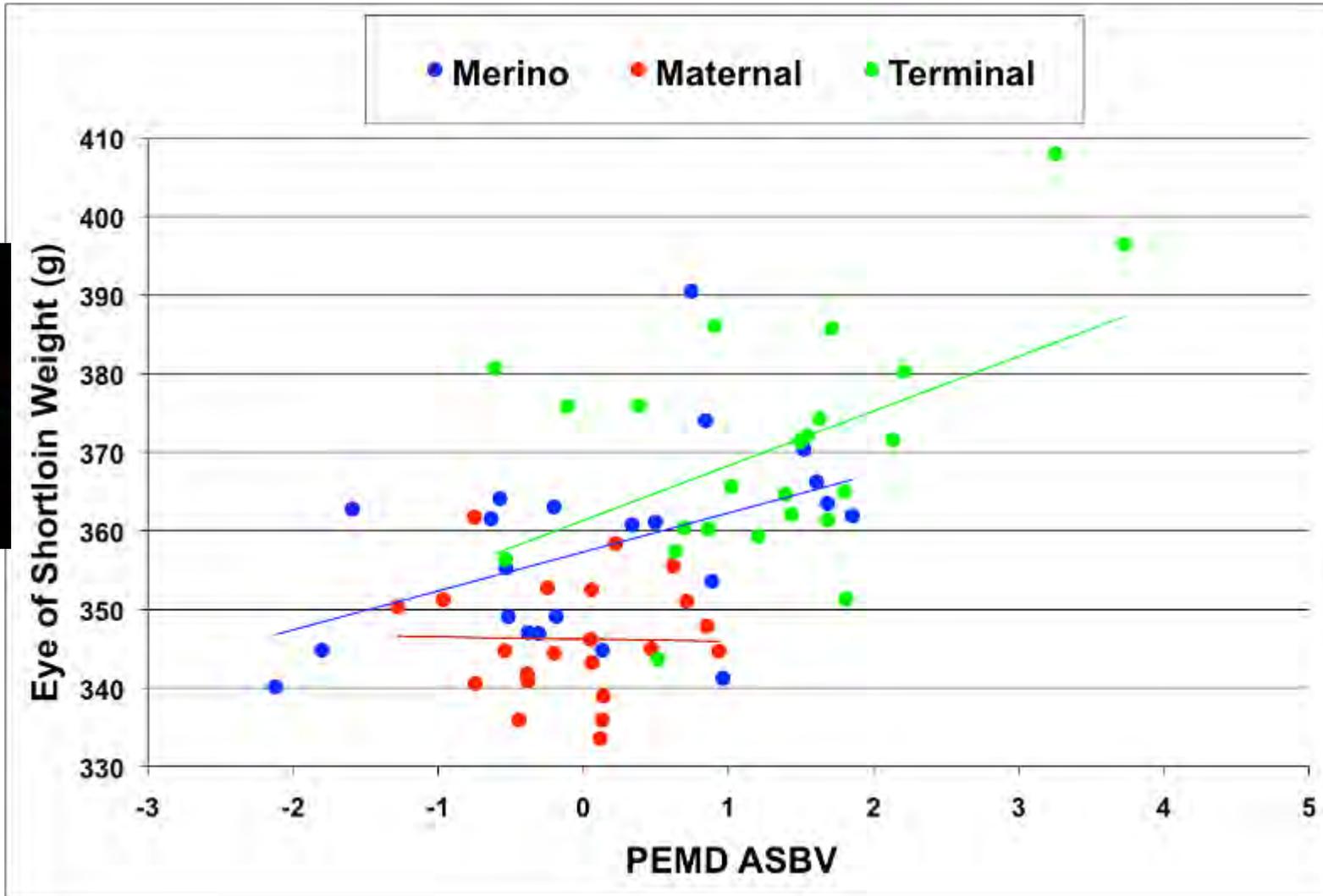
- Score 2 (10mm) = extra 2 kg saleable lean meat
- Score 4 = extra 2kg of fat
- \$60 difference in retail value !

# PFAT reduces carcass fat (ie Shortloin fat weight)



(Note: results shown for 22.5kg HSCW)

# PEMD increases loin muscle weight



(Note: results shown for 22.5kg HSCW)

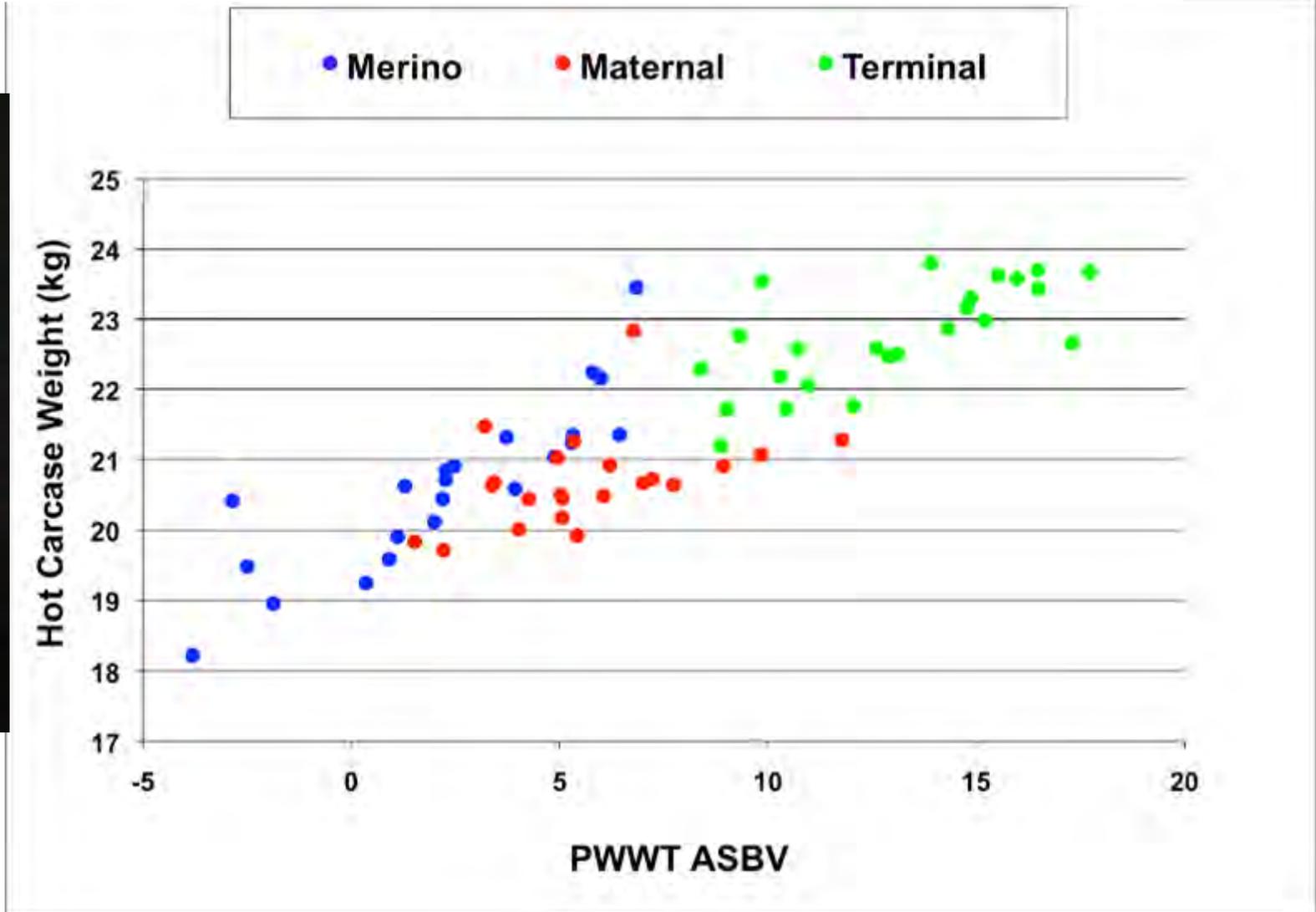
# Growth is king (WWT, PWWT)

WWT, PWWT = "Weight" breeding values

- High growth rate means
  - more weight for age or
  - earlier turn-off at target weight
- High growth rate lambs are more feed efficient
  - They eat less kilos of feed per kilo gained
- More valuable feeder lambs



# The power of PWWT!



# Growth is king (WWT, PWWT)

WWT, PWWT = "Weight" breeding values

**Growth is good—  
...but watch birth  
weight/lambing  
ease**

- High growth  
- more  
- early

- High  
- Th

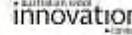
- More value



## Dressing % - also deliver yield (wt)

- Heritably moderate
- Genetic correlations
  - +ve HCW (heavier)
  - +ve EMA (more muscle)

**Every 1% DP = 480gm HCW**  
**= \$2.16 (\$4.50/kg HCW, 48kg LW)**



## Carcase Traits Summary – Terminals

- Growth (WWT, PWWT)
  - For heavier carcase
- Reduced fat depth (PFAT)
  - For leaner carcase
- Eye muscle depth (PEMD)
  - For more muscle where you need it!
- Dressing %
  - Manage fat = heavier carcase, muscle breeding value

## Conclusions - LMY

- Very important trait
- Efficiency on farm
- Efficiency post farm gate
  - ✓ Growth, Muscle & Fat ASBV's
  - ✓ Dressing %

Balance LMY with:

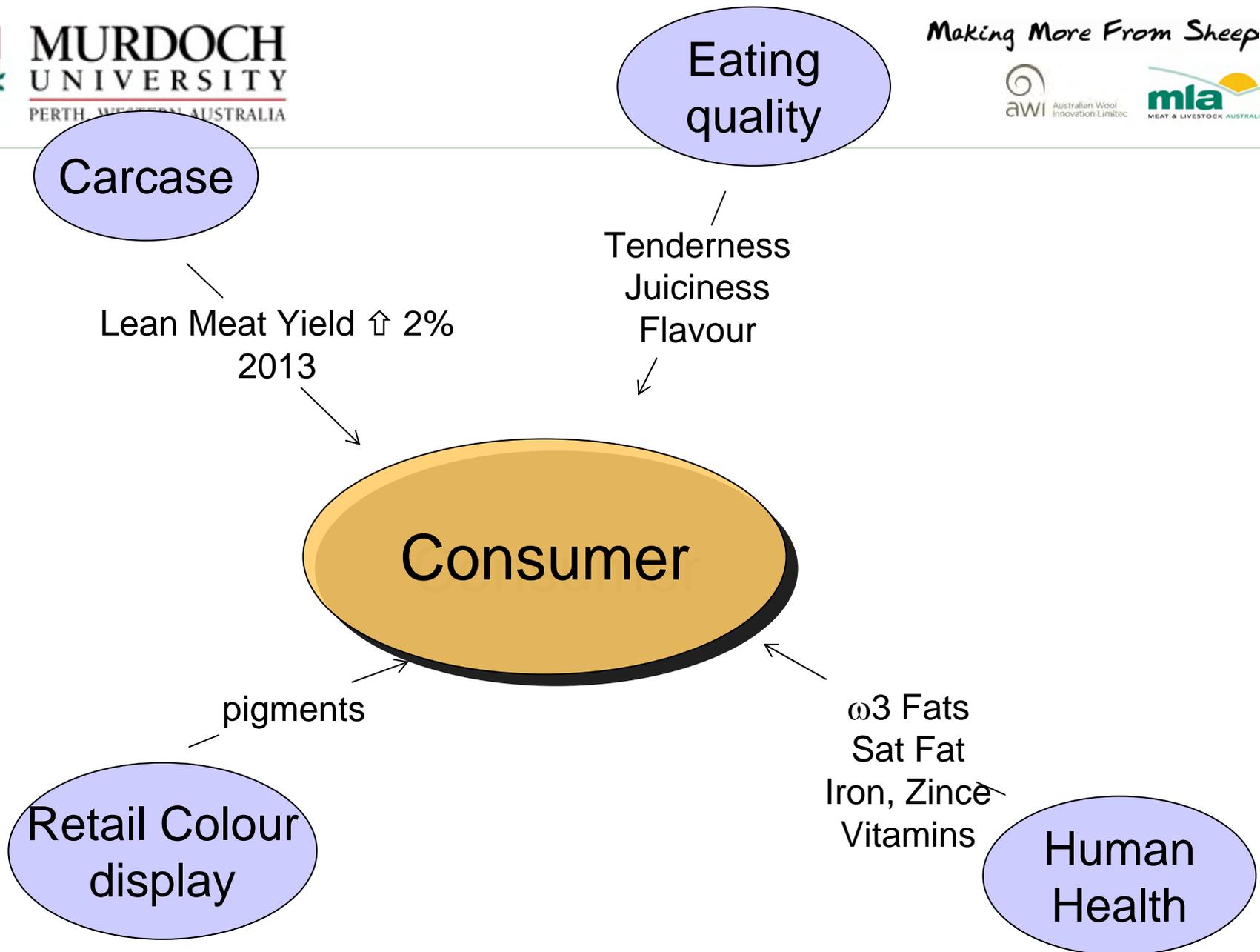
- ✓ Eating quality
- ✓ Human health

## Increasing demand into the future

- Is lamb a staple or niche product?
- Give consumers very good reason to buy lamb!

Promote lamb as a source of nutrients & good for our health

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## Heritability of EQ and health attributes

	Heritability
Shear force 5d PM	0.38
Retail colour- lightness	0.44
Retail colour- redness	0.29
Iron	0.12
Zinc	0.21
Alpha linolenic acid (ALA)	0.37
EPA	0.29
DHA	0.25

0.2-0.4=  
moderately heritable

0.4+=  
highly heritable

## Omega 3 & Lamb?

- Aussie Lamb is a very good source of omega 3's!
- Pork and chicken are poor sources
- Better still- food sources are more bioavailability than supplements.
- Live longer= eat lamb!

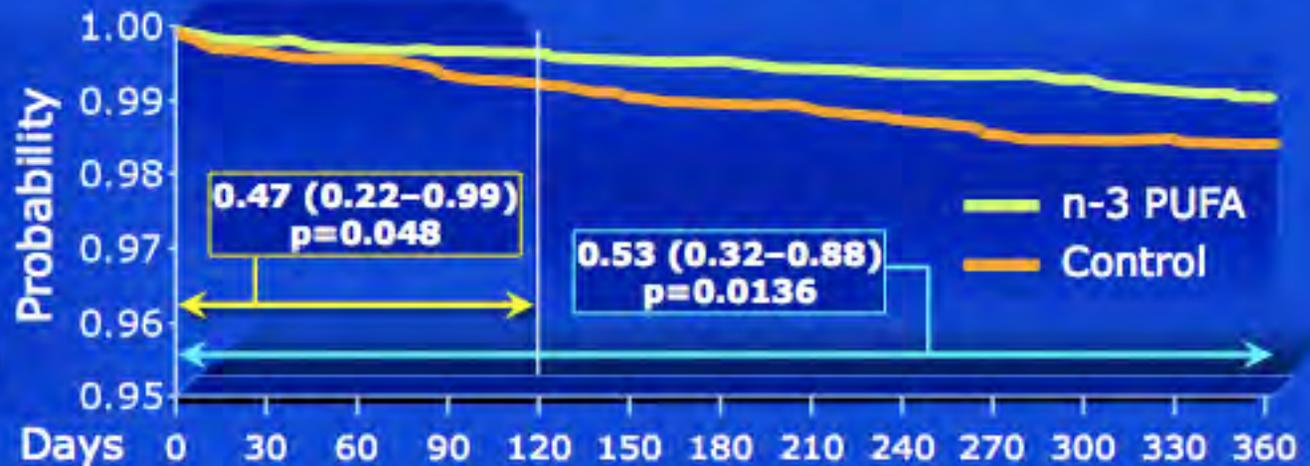
# GISSI-Prevenzione: Time Course of Clinical Events

>11,300 post-MI patients were given usual care with or without **850 mg EPA+DHA** for 3.5 years

**Total mortality reduced by 28% (p=0.027)**



**Sudden death reduced by 47% (p=0.0136)**

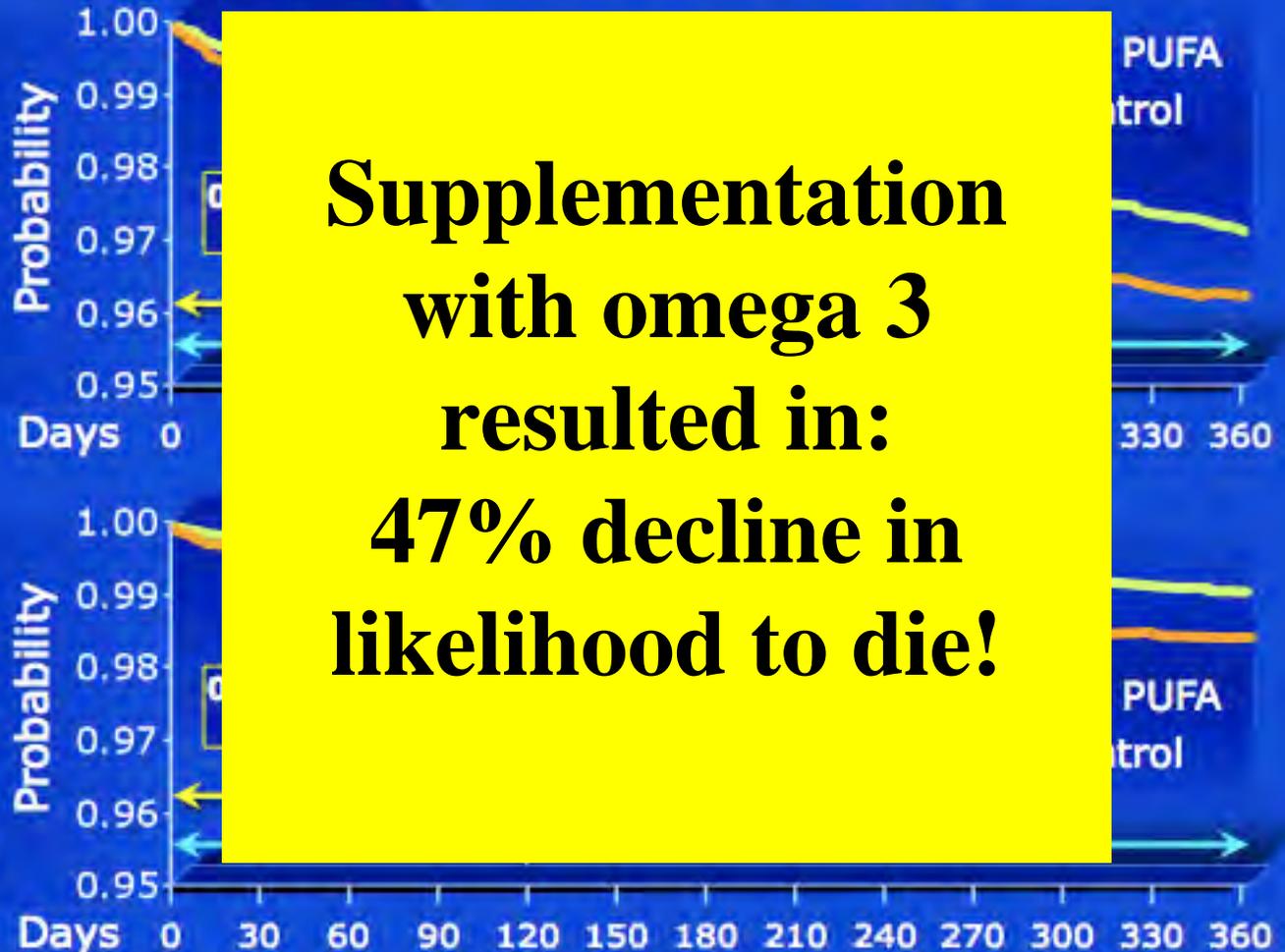


# GISSI-Prevenzione: Time Course of Clinical Events

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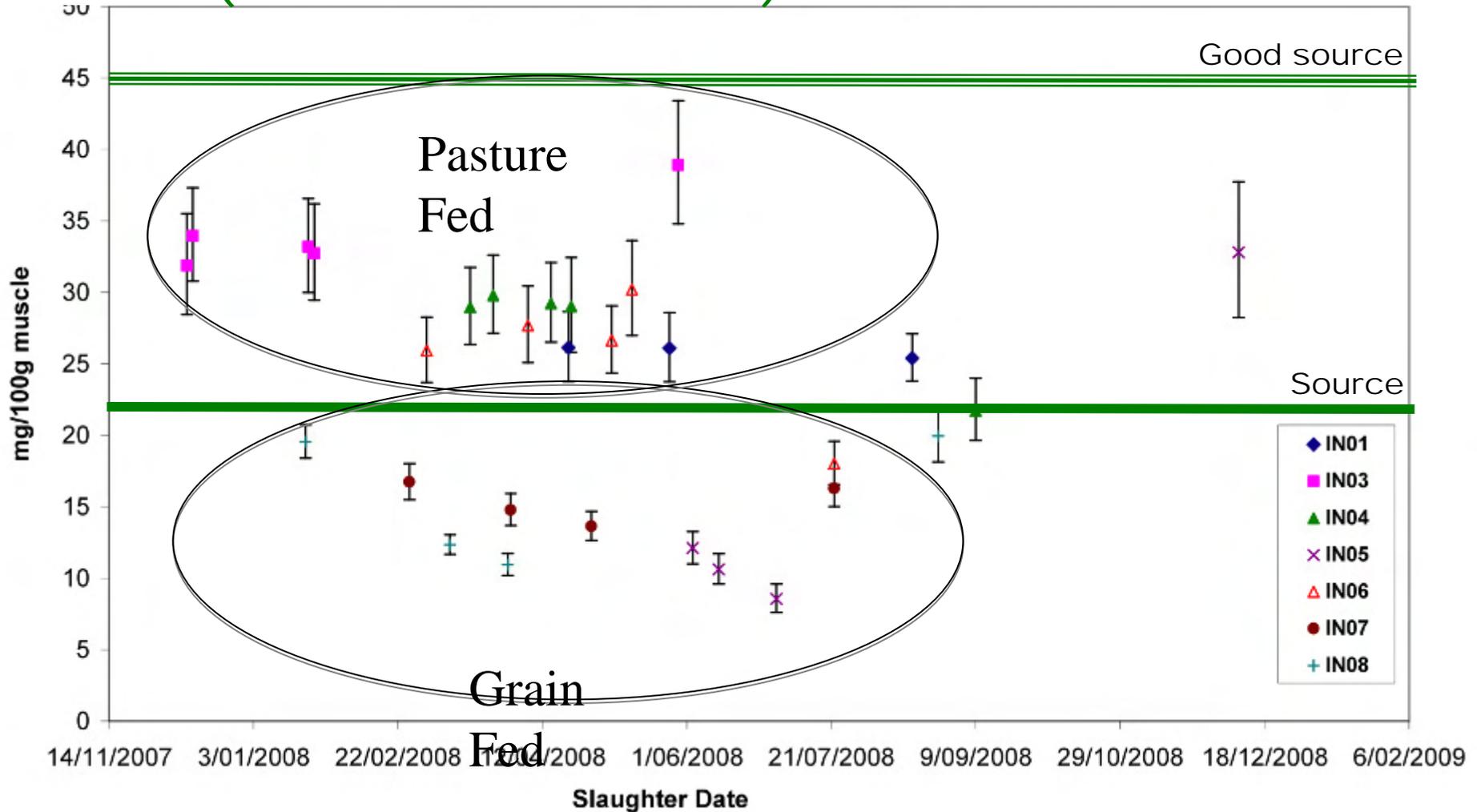
**Total mortality reduced by 28% (p=0.027)**

**Sudden death reduced by 47% (p=0.0136)**



**Supplementation with omega 3 resulted in: 47% decline in likelihood to die!**

# Omega 3 x site x kill date (results from INF)



# IRON and ZINC

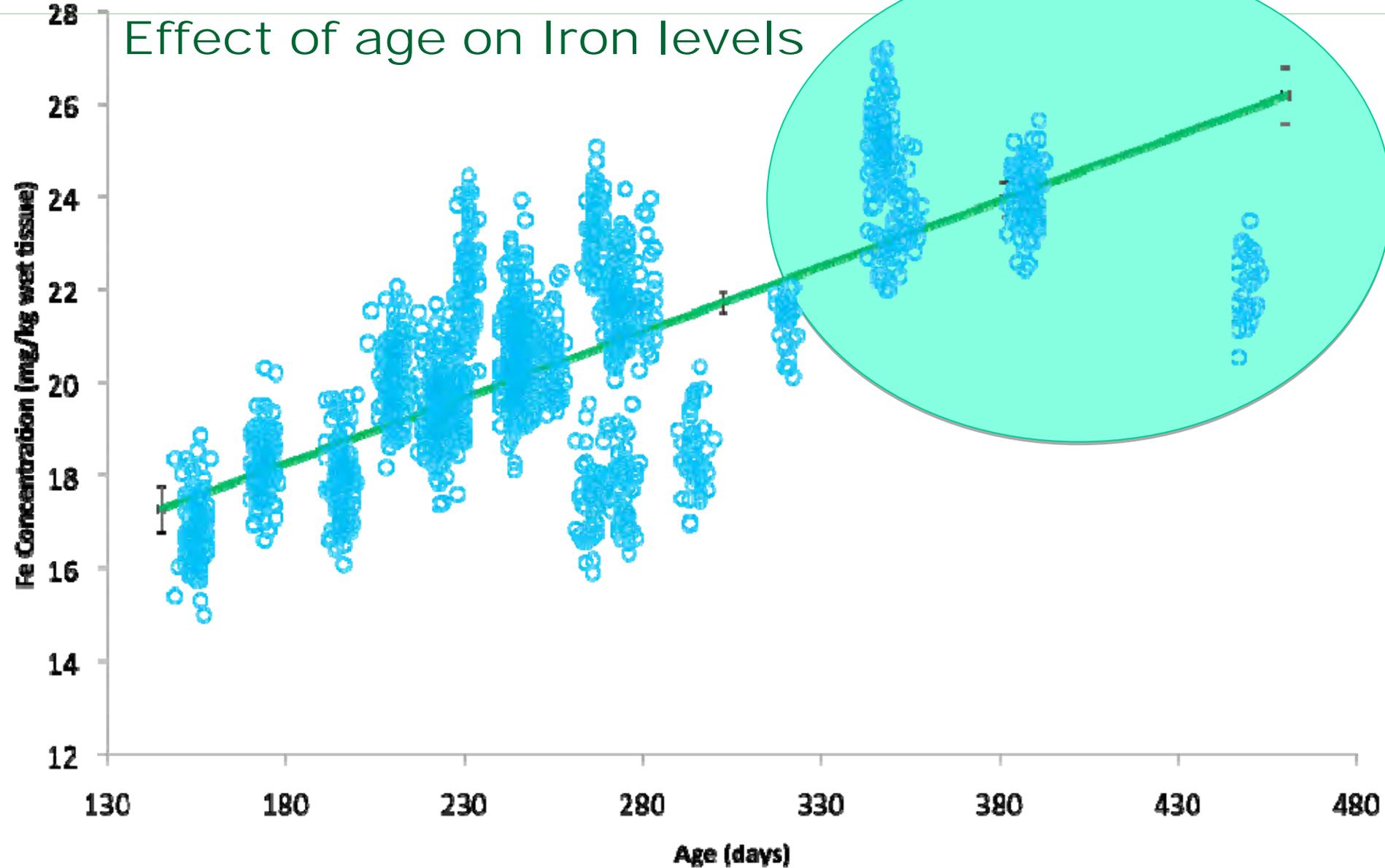
(2.2mg/100gm good source)

Sire/Dam	Fe (mg/kg)		Zn (mg/kg)	
Border L-M	2.0	91%	2.4	✓
Merino-M	2.4	✓	2.4	✓
Terminal -BLM	2.0	91%	2.4	✓
Terminal -M	2.0	91%	2.3	✓

- Lamb right on a good source of Fe claim – best not to go lower (genetics)



# Effect of age on Iron levels



## Maintaining or improving eating quality

- Eating quality is now non-negotiable
- Consumers want healthier and good eating meat!
- Most eating quality traits are highly heritable
- There are no real breed effects for eating quality
- There are some challenging correlations



## Conclusions – Human health

- Important driver of lamb demand into the future
- We are in a position to manage iron levels
- Omega 3 – on average we meet a claim
- Both under genetic control

## Conclusions – Supplychain utilisation

- Industry can really design the product they want
- No other industry is currently in this position
- Before its time??
- Clearly we think not – the Lamb Industries maturity is just about right for it
- Already have a number of supply chains interesting in utilising the new information

# Electrical Stimulation



300V, 2A, 1ms, 15Hz

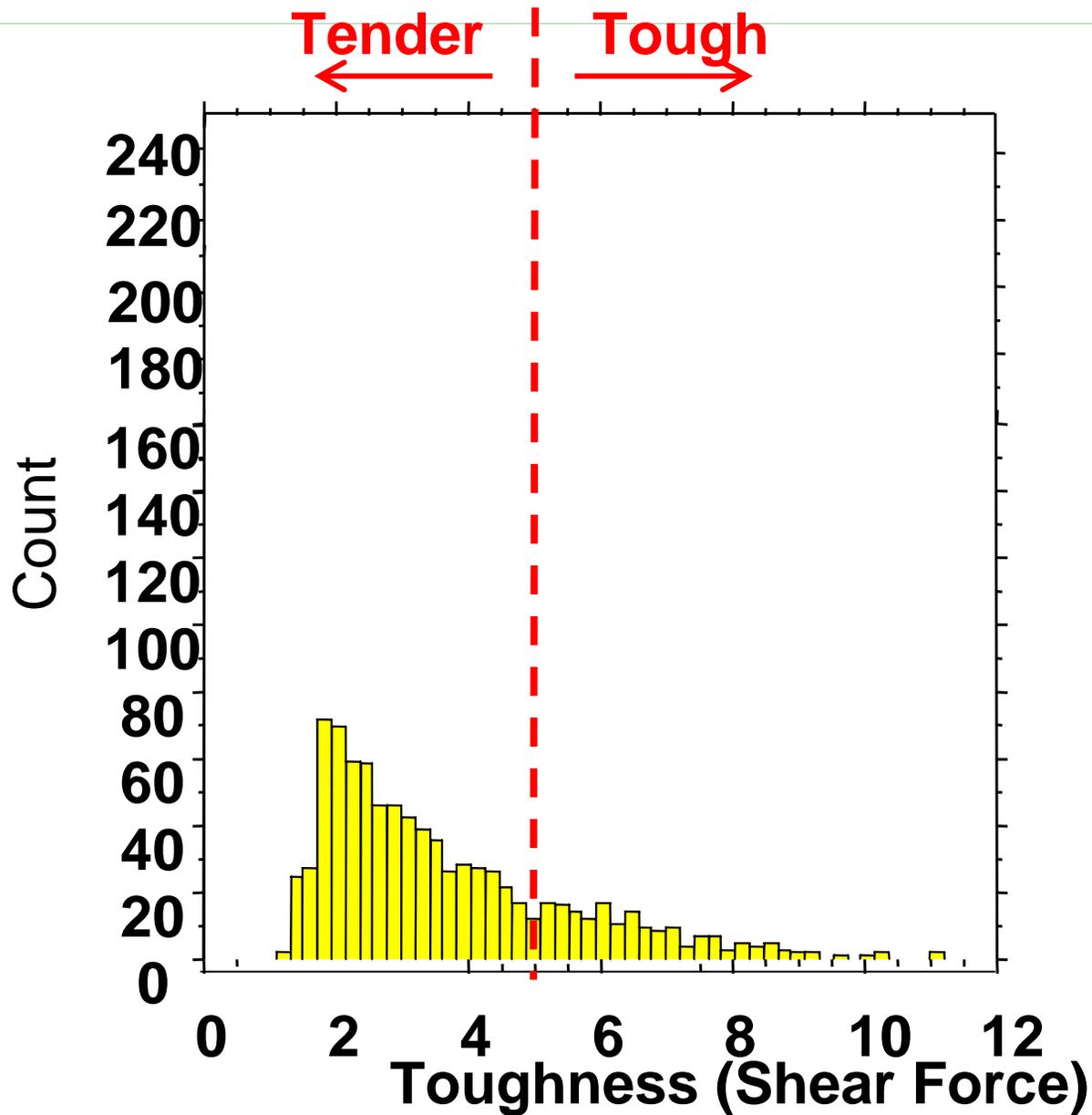
# Tenderness of Lamb Loins (1990)



PERTH, WESTERN AUSTRALIA

More From Sheep

awil Australian Wool Innovation Limited



# Tenderness of Lamb Loins (2007)

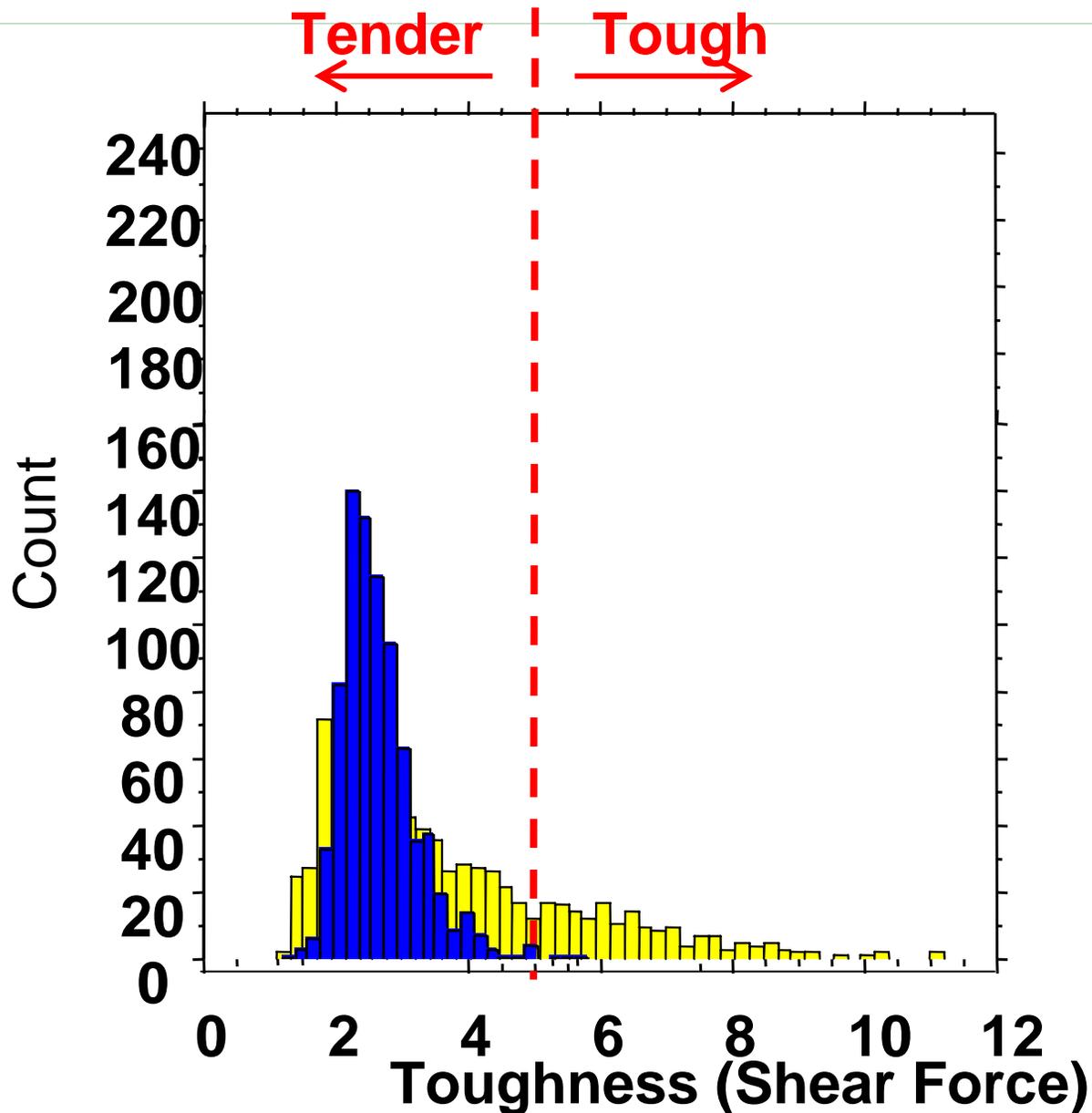


PERTH, WESTERN AUSTRALIA

More From Sheep

awil

Australian Wool  
Innovation Limited



# Tenderness of Lamb Loins (2007)

More From Sheep

PERTH, WESTERN AUSTRALIA

awil Australian Wool Innovation Limited

mla MEAT & LIVESTOCK AUSTRALIA

Tender | Tough

240

Count

65% of Australian Meat Processors now Electrically Stimulate Carcasses

0

0

2

4

6

8

10

12

Toughness (Shear Force)

# Take home messages

*Making More From Sheep*



Aussie lamb is the best because:

1. It's a good source of omega 3 and iron to meet consumer demand for healthy meat

**Position AUS lamb as premier meat on Planet!**

# Take home messages

*Making More From Sheep*



Aussie lamb is the best because:

1. It's a good source of omega 3 and iron to meet consumer demand for healthy meat
2. EQ is guaranteed through MSA Sheepmeat
  - IMF levels to ensure good EQ
  - Consumer gets good value for money and good eating experience
  - Consumers will continue to support lamb industry

**Position AUS lamb as premier meat on Planet!**

# Take home messages

Making More From Sheep



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3. Industry is focused on improved efficiencies along supply chain from increased LMY and decreased fat

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  - Consumer gets good value for money and good eating experience
  - Will continue to support lamb industry
3. Industry is focused on improved efficiencies along supply chain from increased LMY and decreased fat
4. Understanding how changes to live animals (genetics) impacts on LMY and EQ

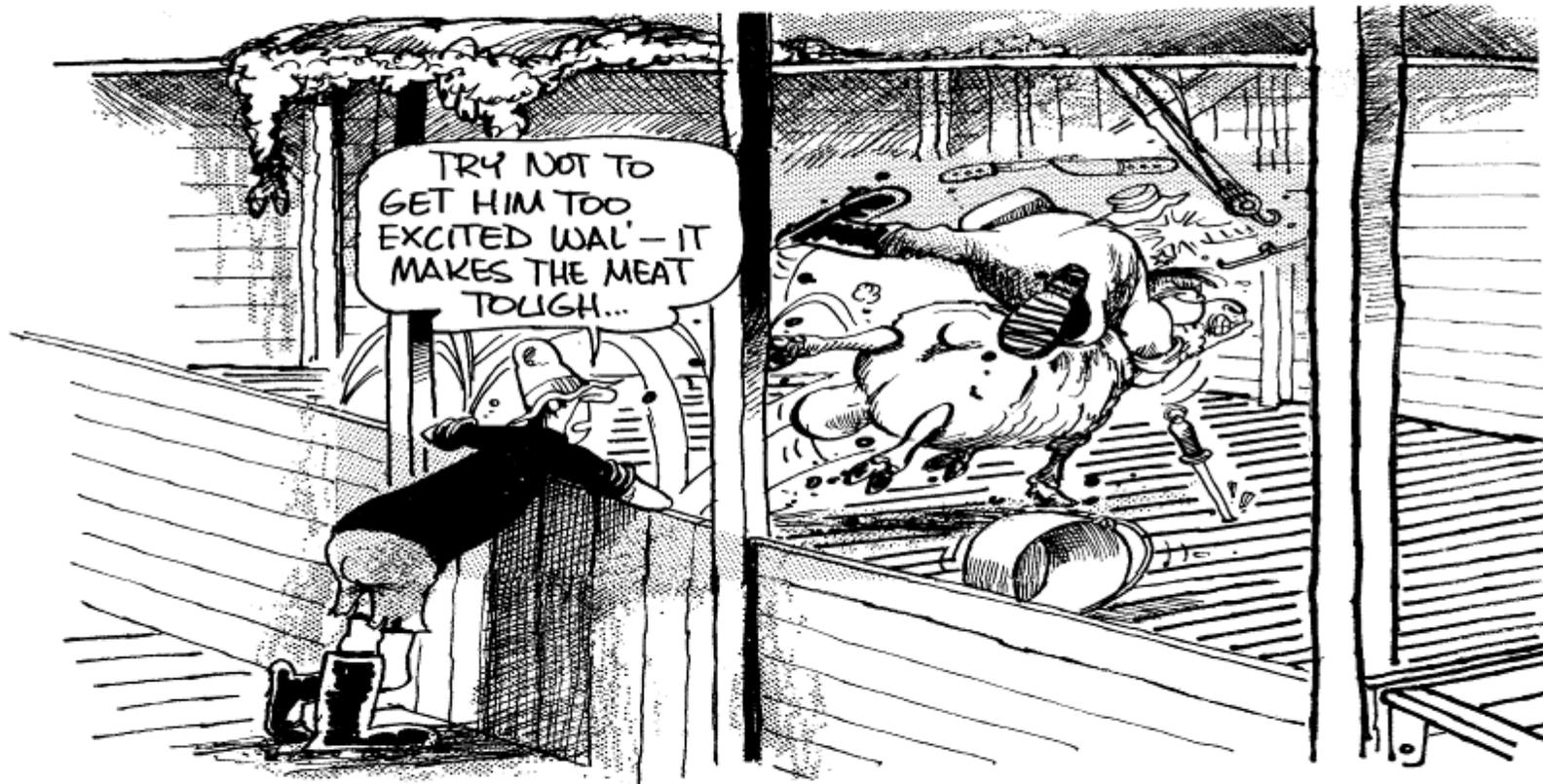
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# Sign posts

- MMfS – Module 3: Market Focused Lamb and Sheepmeat Production
- Sheep CRC website
- MLA Tip n Tools
- Sheep Genetics, MSA Workshops



The screenshot shows the website interface for 'Making More From Sheep'. At the top, the title 'Making More From Sheep' is written in a cursive font. To the right are the logos for 'awi Australian Wool Innovation Limited' and 'mla MEAT & LIVESTOCK AUSTRALIA'. Below the title is a navigation bar with links for 'Home', 'Modules', 'Download', 'Order a Copy', and 'Contact Us'. A search bar with a 'FIND' button is also present. The main content area features a blue header for 'MODULE 3: Market Focused Lamb and Sheepmeat Production'. Below this is a blue box with the text 'What does this module do for you?' next to a photograph of several lamb carcasses hanging in a processing facility. At the bottom, a paragraph states: 'This module is designed to assist sheep producers to deliver quality assured lamb and sheepmeat to target market specifications. It integrates technical aspects of the production system with the marketing process to enable you to:'



TRY NOT TO  
GET HIM TOO  
EXCITED WAL' - IT  
MAKES THE MEAT  
TOUGH...