



Aussie lamb – the worlds best

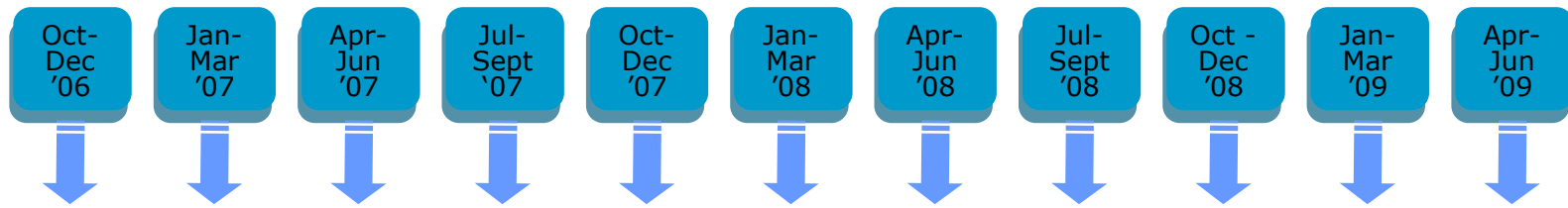
Graham Gardner



Summary

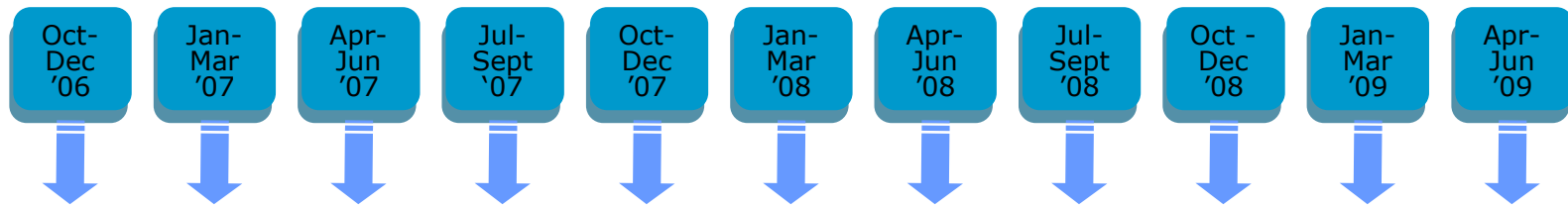
- Lean Meat Yield
 - Importance
 - Consumers
 - Drivers
- Eating Quality & MSA
- Human health snapshot

Mean serves of meat types per week based on Mums with Kids



	Oct-Dec '06	Jan-Mar '07	Apr-Jun '07	Jul-Sept '07	Oct-Dec '07	Jan-Mar '08	Apr-Jun '08	Jul-Sept '08	Oct - Dec '08	Jan-Mar '09	Apr-Jun '09
Beef Serves	2.15	2.05	2.27	2.23	2.16	2.11	2.21	2.2	2.02	2.23	2.16
Chicken Serves	2.17	2.11	2.09	2.15	2.07	2.1	2.17	2.19	2.17	2.31	2.19
Fish Serves	1.01	1.08	1.04	1.00	1.12	1.28	1.11	1.03	0.96	1.1	0.98
Lamb Serves	0.95	0.96	0.85	0.96	0.98	0.93	0.95	1.03	0.84	1.03	1.03
Pork Serves	0.48	0.56	0.62	0.59	0.64	0.62	0.66	0.66	0.57	0.65	0.56
Veal Serves	0.23	0.25	0.25	0.23	0.24	0.22	0.24	0.28	0.14	0.24	0.21

Mean serves of meat types per week based on Mums with Kids

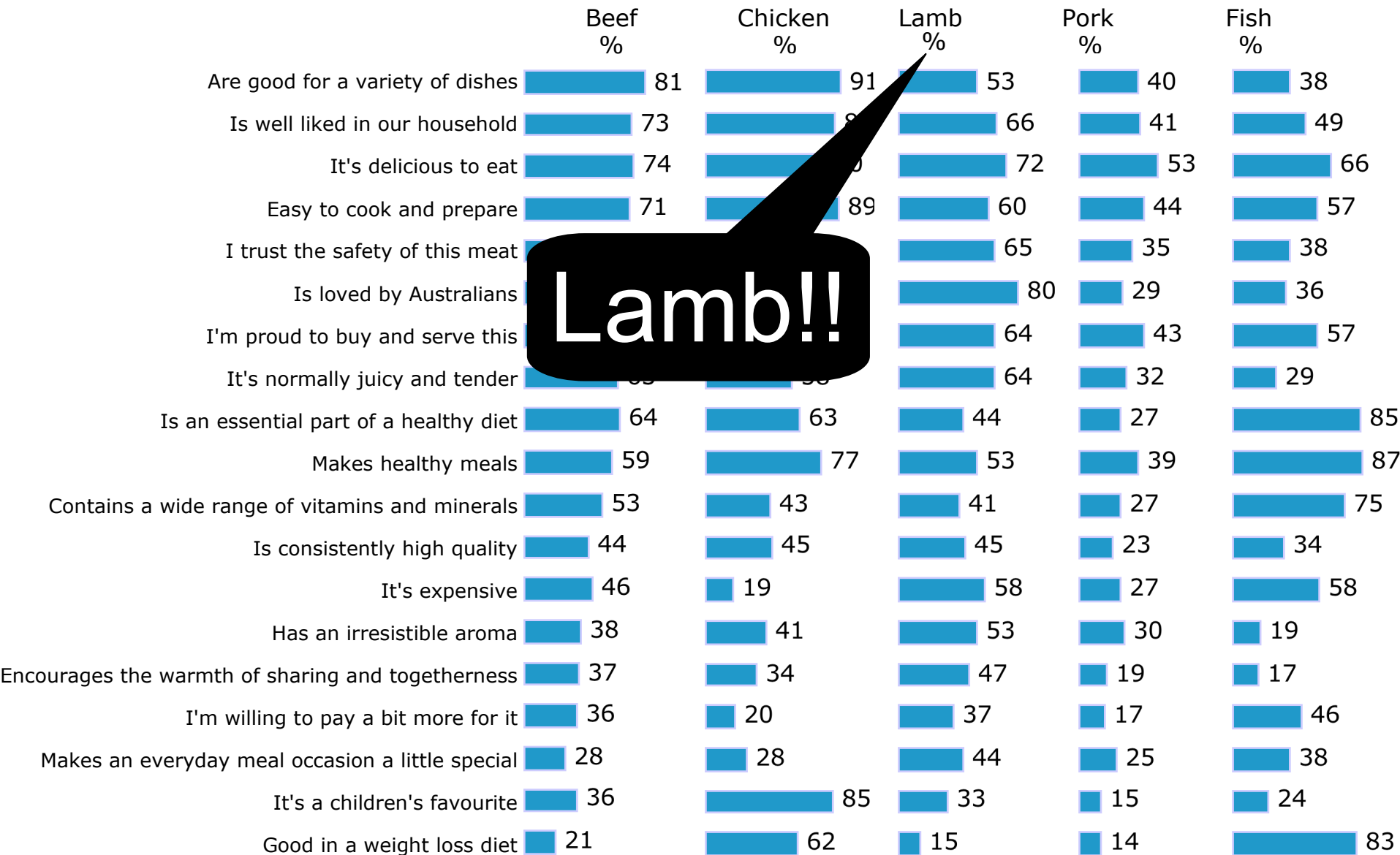


	Oct-Dec '06	Jan-Mar '07	Apr-Jun '07	Jul-Sept '07	Oct-Dec '07	Jan-Mar '08	Apr-Jun '08	Jul-Sept '08	Oct-Dec '08	Jan-Mar '09	Apr-Jun '09
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Room to capture more market share?

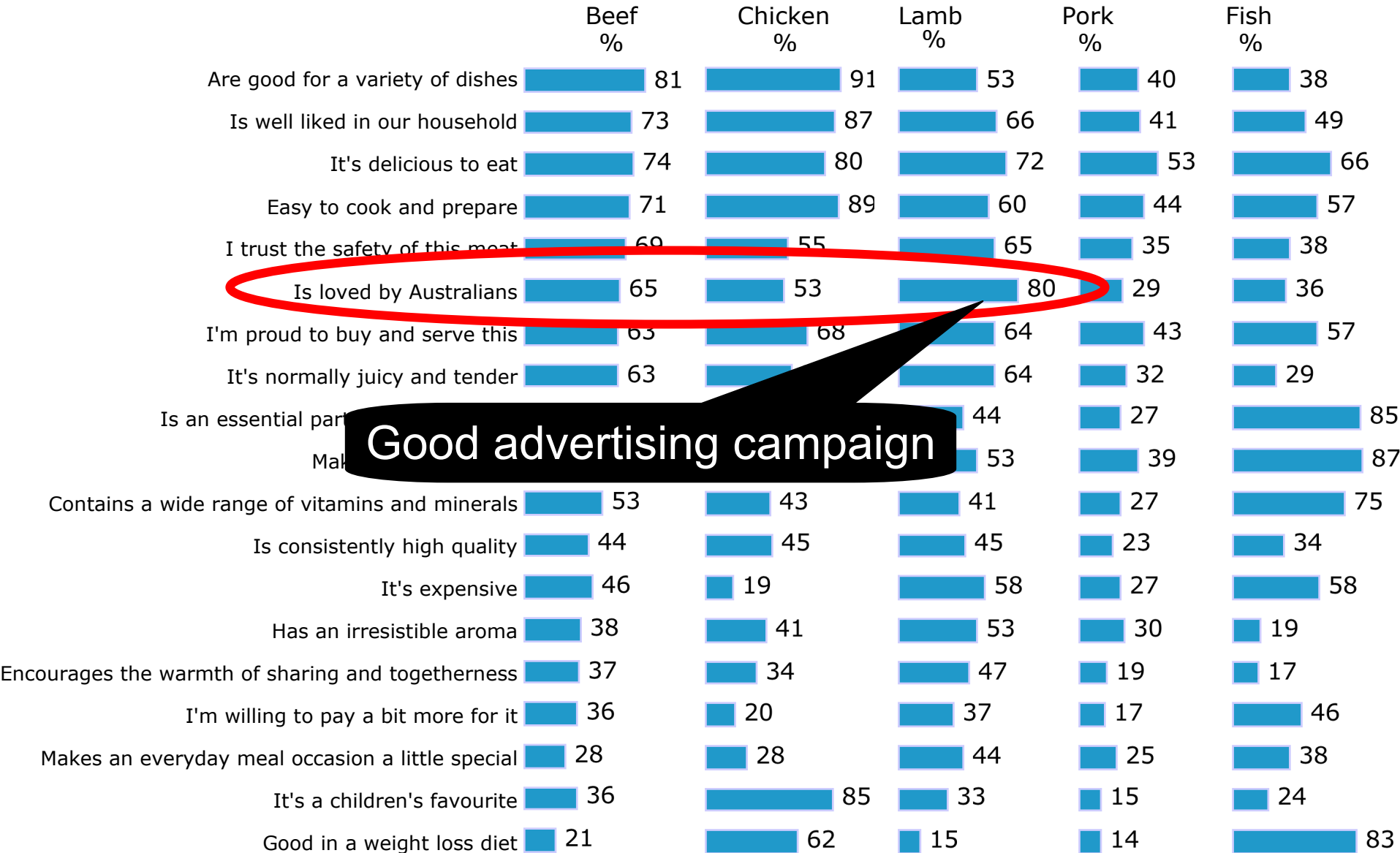
Based on mums with kids aged 5-17 yrs old

Image - Mums



Lamb!!

Image - Mums

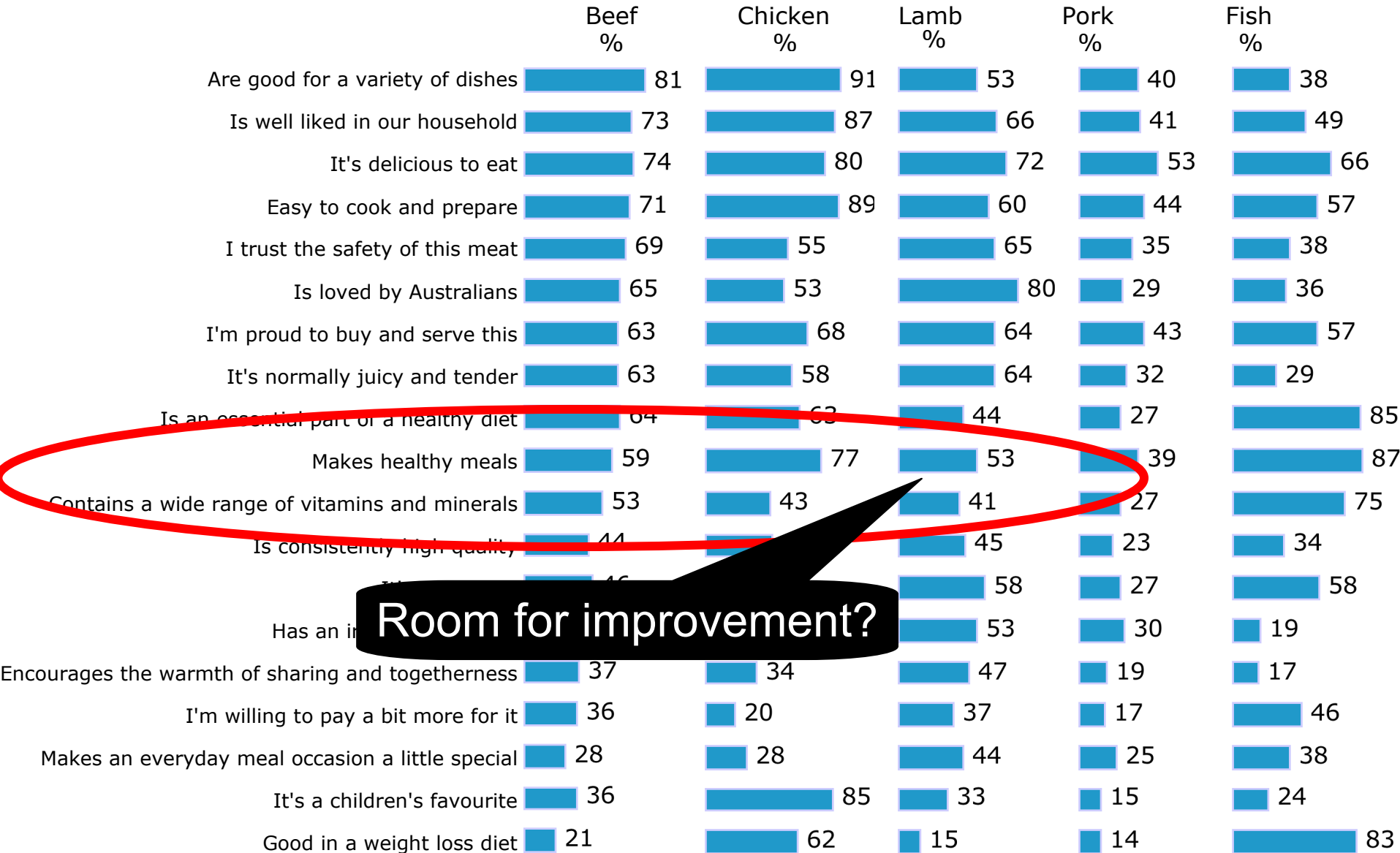


Good advertising campaign

Image - Mums



Image - Mums



Room for improvement?

Image - Mums



Consumers don't lie...

Lamb 'lean' is expensive



\$39.99/kg



\$59.33/kg

Lamb 'lean' is expensive



\$39.99/kg



\$59.33/kg



\$39.99/kg

Cube Roll



\$39.99/kg

Tenderloin

Back to basics – the CONSUMER



5 pillars of consumer demand

Integrity & Traceability

Eating Quality

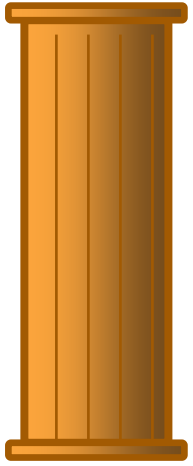
Nutritional value

Ethical systems

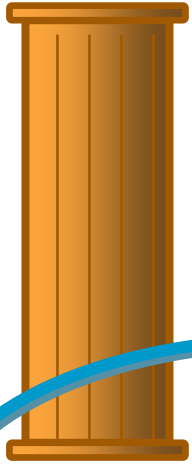
Value & efficiency

Back to basics – the CONSUMER

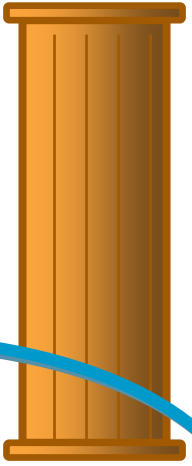
5 pillars of consumer demand



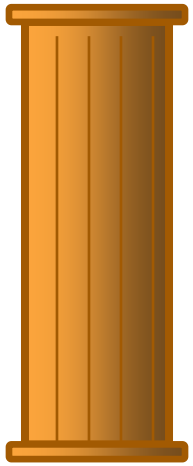
Integrity & Traceability



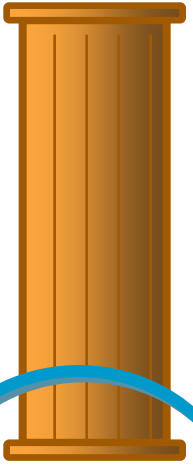
Eating Quality



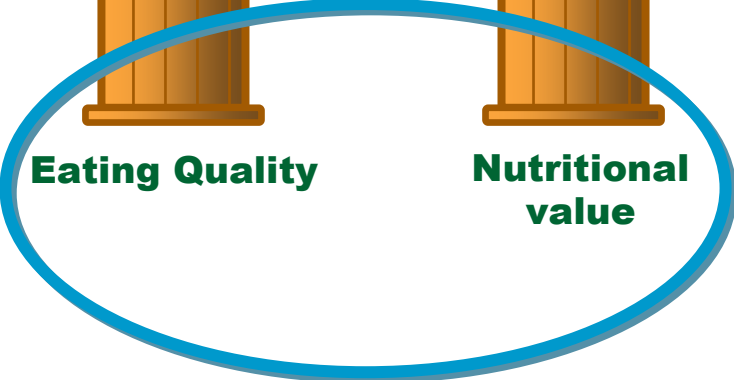
Nutritional value



Ethical systems



Value & efficiency





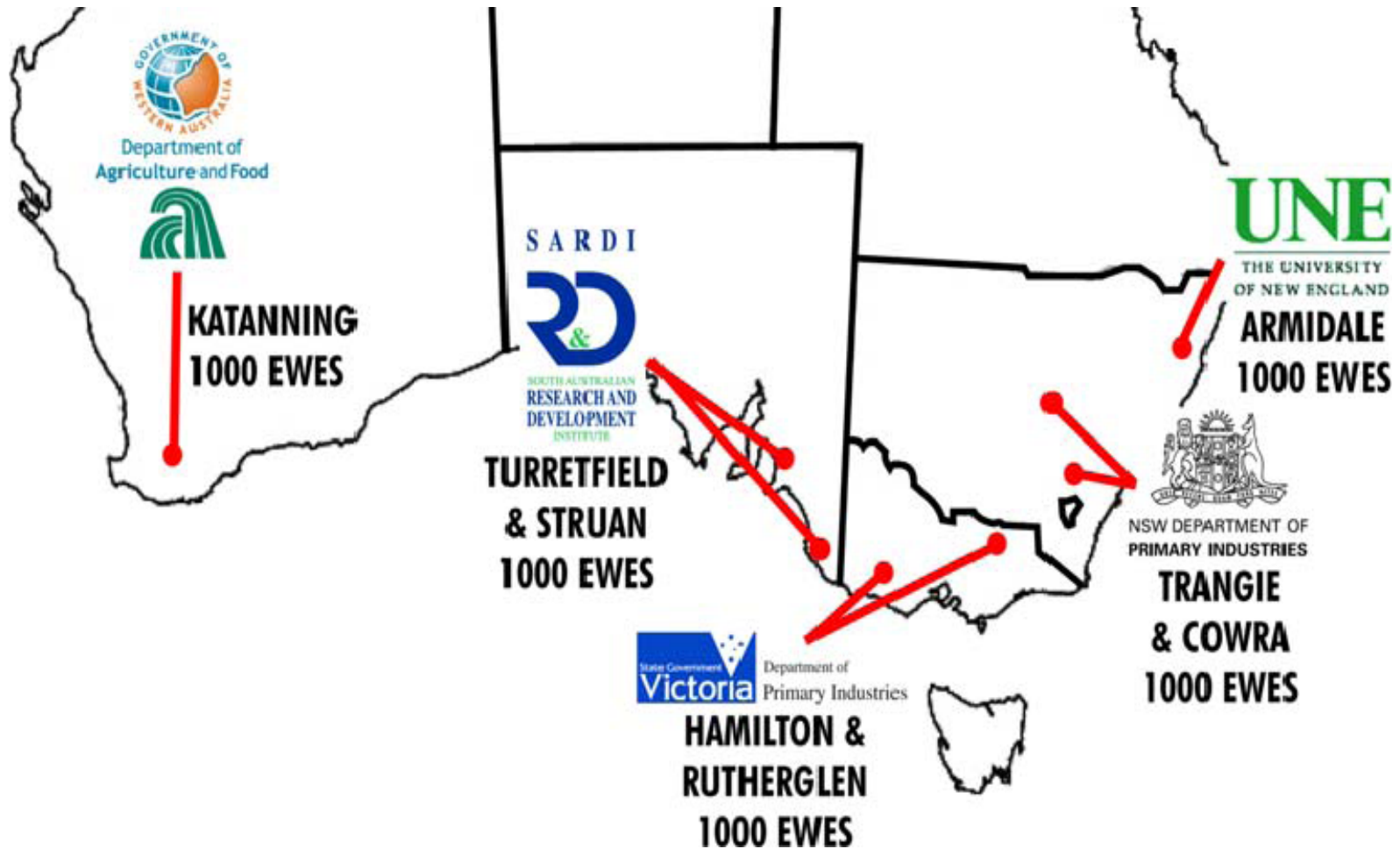
Sheep CRC & MLA

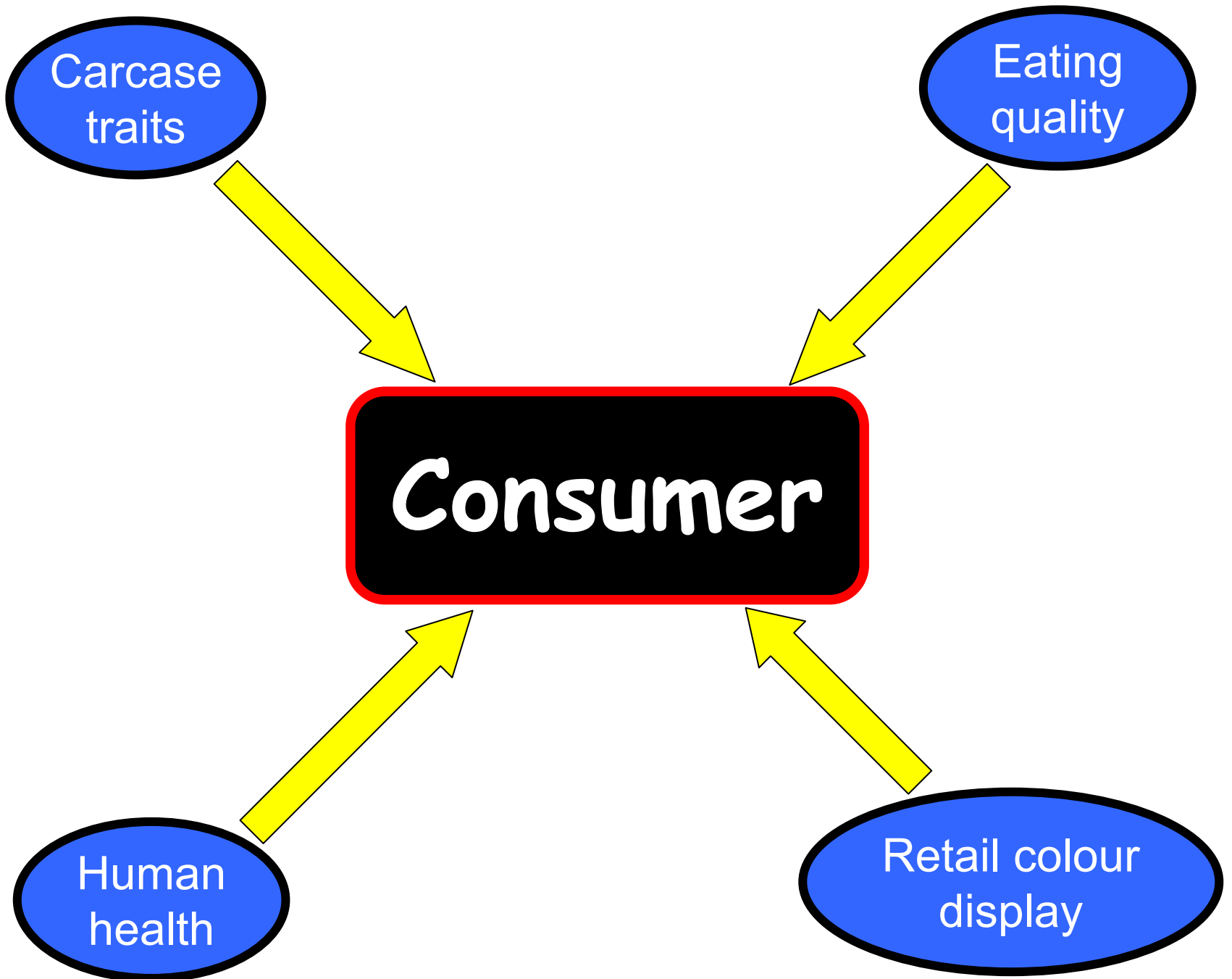
Into the Future with

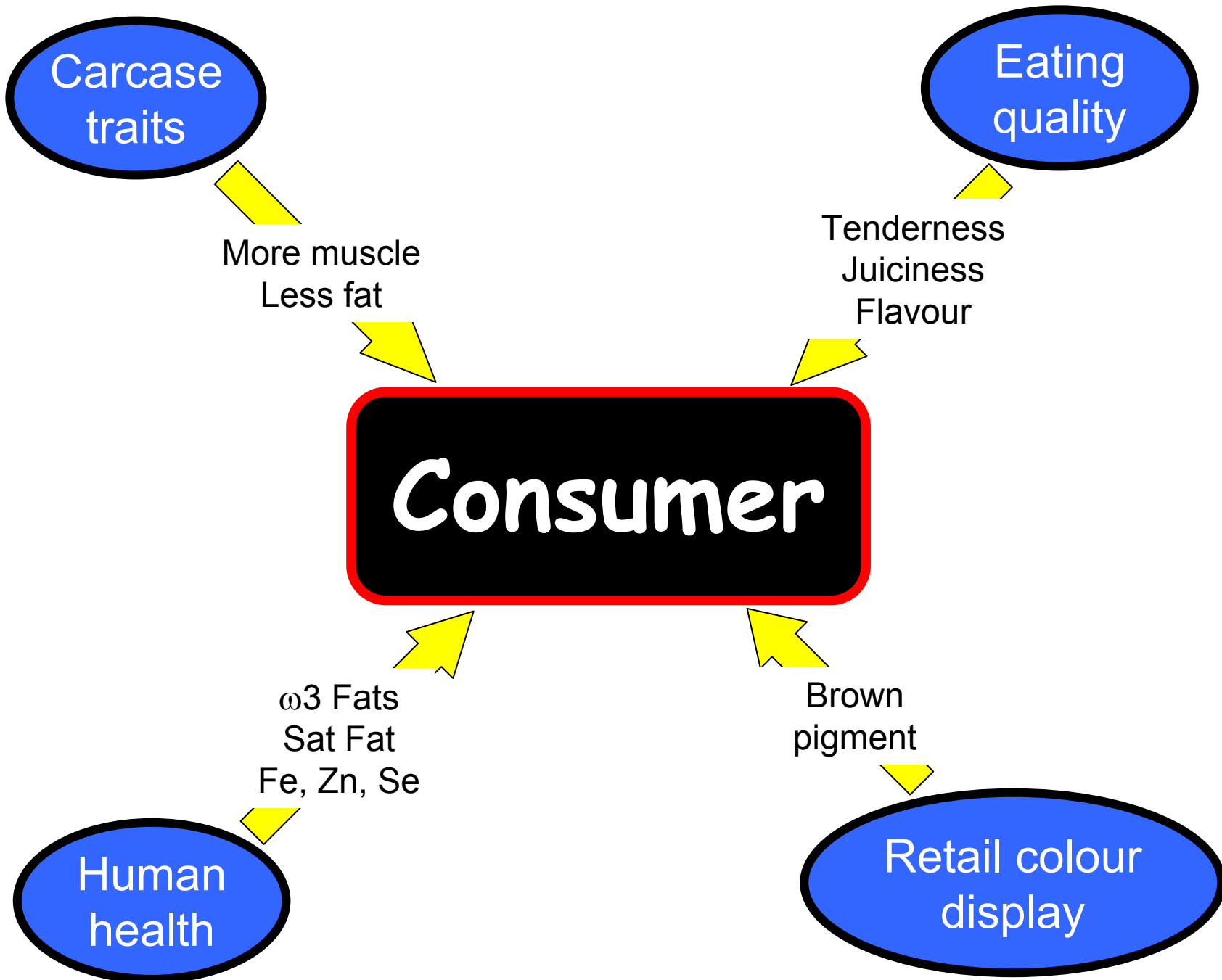
Information Nucleus



100 sires/dams, range of production systems







Carcase
traits

More muscle
Less fat

Eating
quality

Tenderness
Juiciness
Flavour

DELIVERY

Info nucleus \Rightarrow Sheep Genetics Aust.

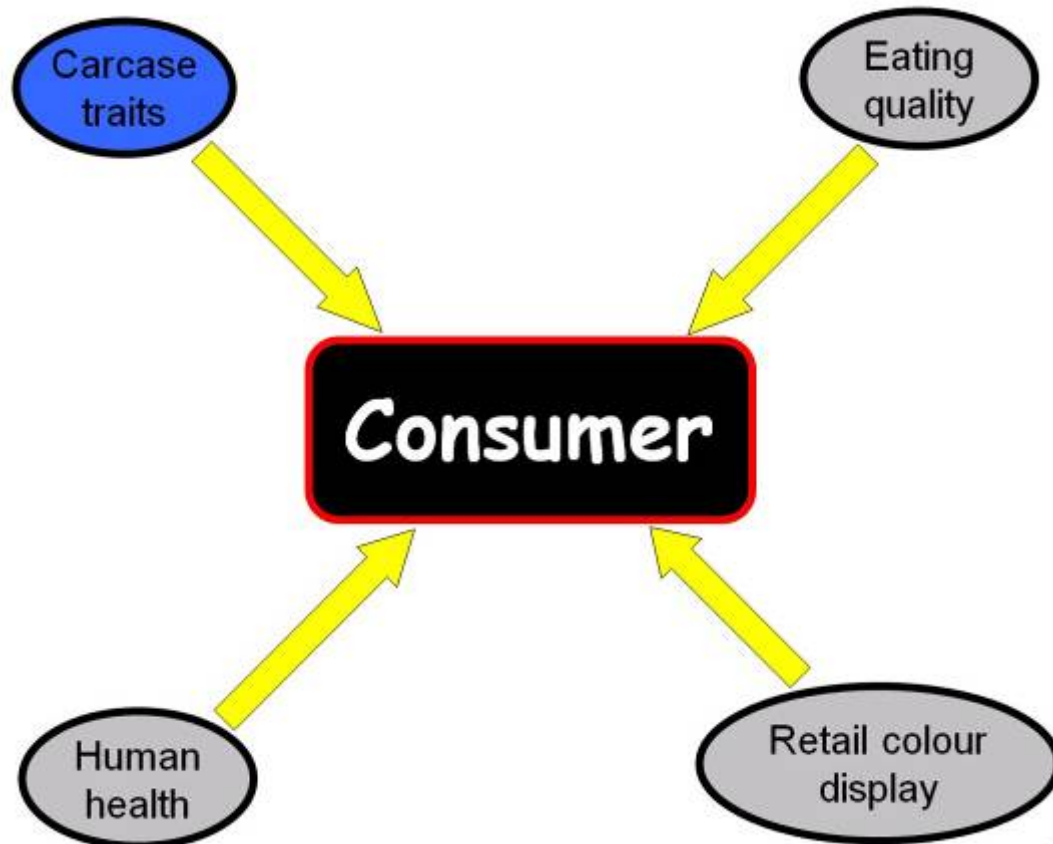
ω 3 Fats
Sat Fat
Fe, Zn, Se

Human
health

Brown
pigment

Retail colour
display

Yield!



Key traits for LMY



SHEEP GENETICS AUSTRALIA



- Growth (PWWT)
- Reduced fat depth (PFAT)
- Eye muscle depth (PEMD)

Carcase weight
Carcase composition

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

Growth is king (WWT, PWWT)

WWT, PWWT = "Weight" breeding values

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



■ High growth

- more
- e

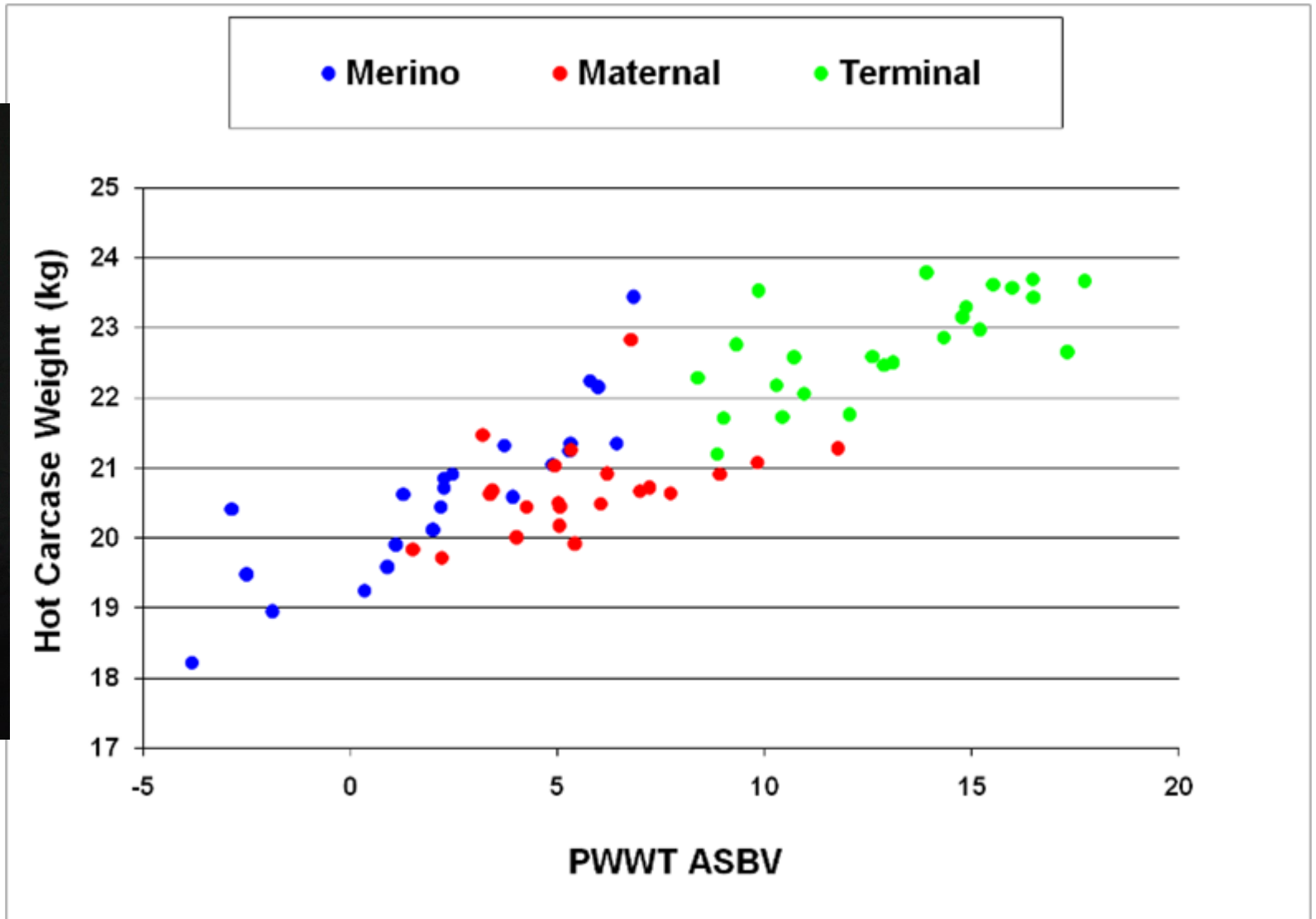
■ High growth

- They eat less

ment


■ More valuable feeder lambs

The power of PWWT!



Genetically elite turnoff quicker !

2000 crossbred ewes joined to terminal sires
% of lambs 43kg plus at 4 months (NSW)

Sire Index	% band 	43kg +
High index	20	50%
Mid index	50	20%
Low index	90	10%

Source: Sheep CRC

**But is it really just about
weight?...**

Why yield matters!

Lean meat yield – Less fat!



Score 4

Carcase Wt 23.0 kg
GR 20.0 mm

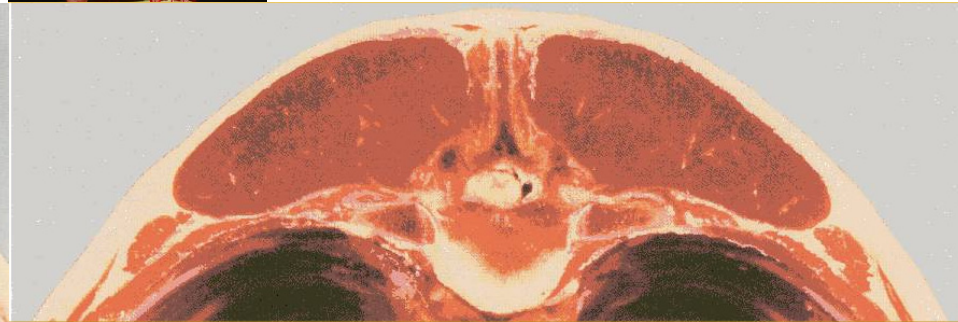
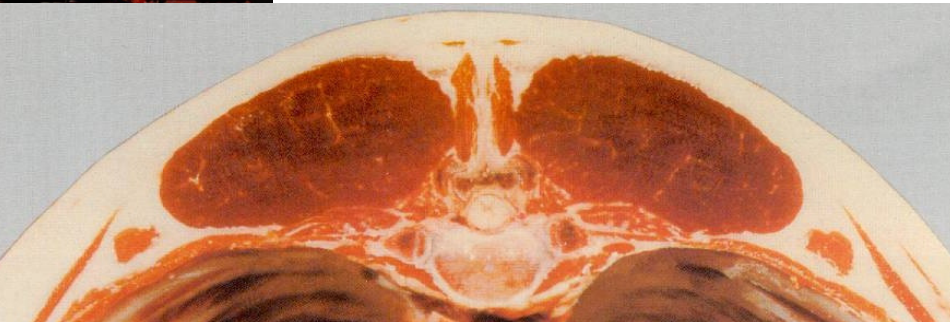
Saleable Meat Yield
48%



Score 2

Carcase Wt 23.6 kg
GR 10.0 mm

Saleable Meat Yield
56%



Lean meat yield – Less fat!

Score 4
Fat: 6.87kg
Saleable Meat: 10.34kg
Retail Value: \$144

Score 2
Fat: 4.68kg
Saleable Meat: 13.08kg
Retail Value: \$173



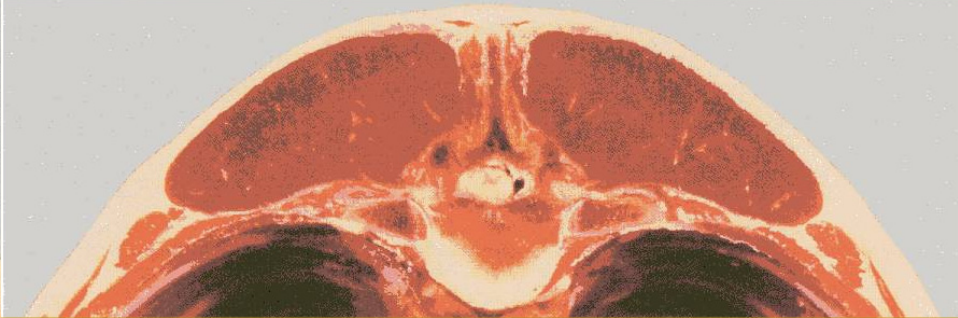
Fat Score 4

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Fat Score 4

Fat Score 2

Saleable Meat Yield
56%

An extra \$30
for the supply
chain!

This fat is wasteful for ALL

- Little return on fat for processor
- Extra cost of trim = labour
- Extra feed cost to producer

This fat is wasteful for ALL

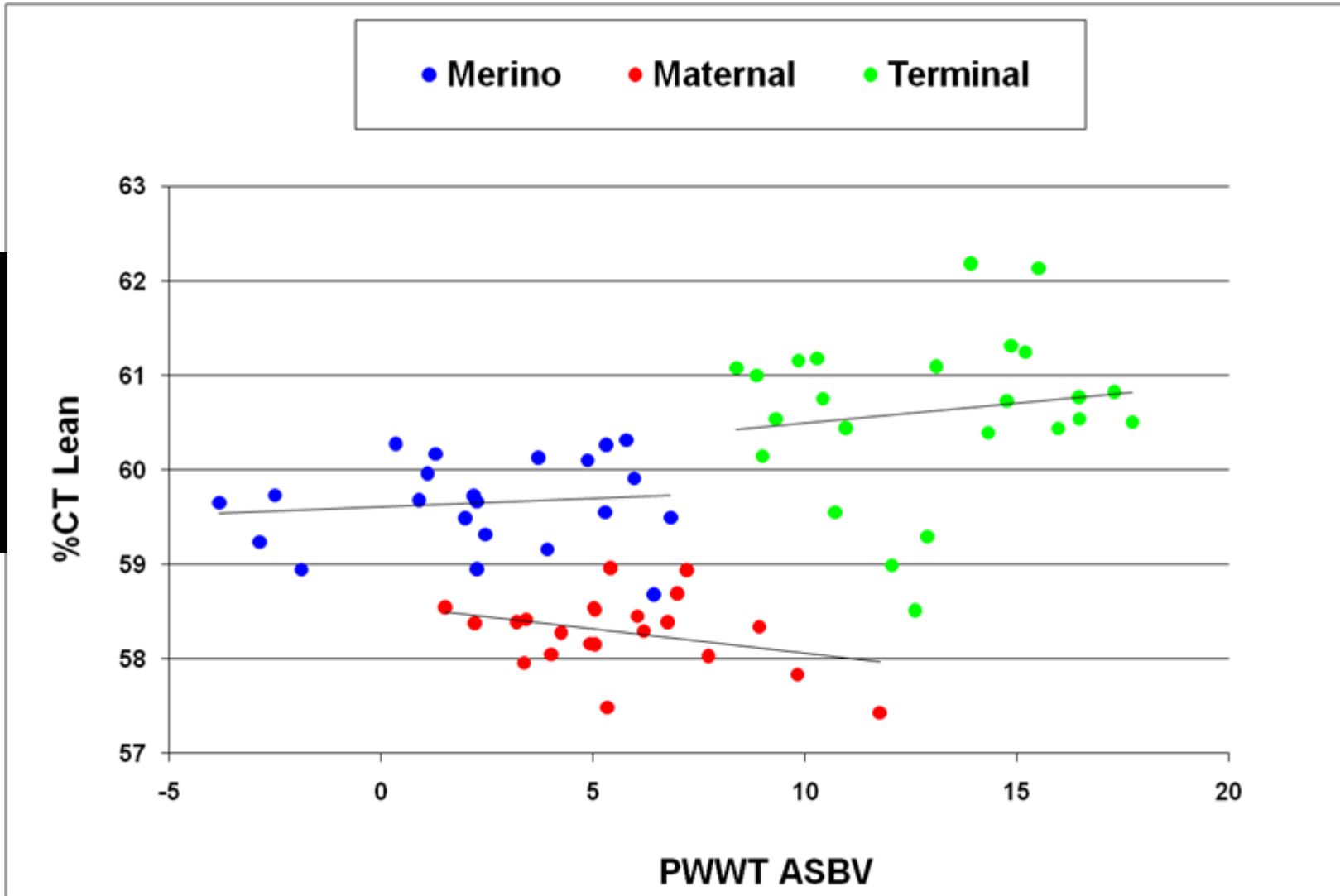
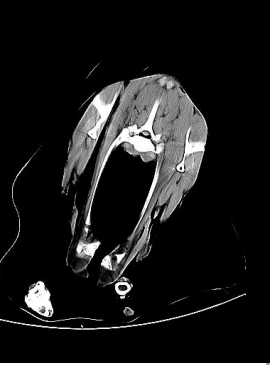
- Little return on fat for processor
- Extra cost of trim = labour
- Extra feed cost to producer
 - Assume feed lamb from 35kg to 50 kg
 - Score 4 - FCR 6 out to 8
 - Score 2 - FCR 5 out to 6
 - Score 4 lamb needs about 20kg EXTRA FEED

Lean Meat Yield Heritability = 0.39

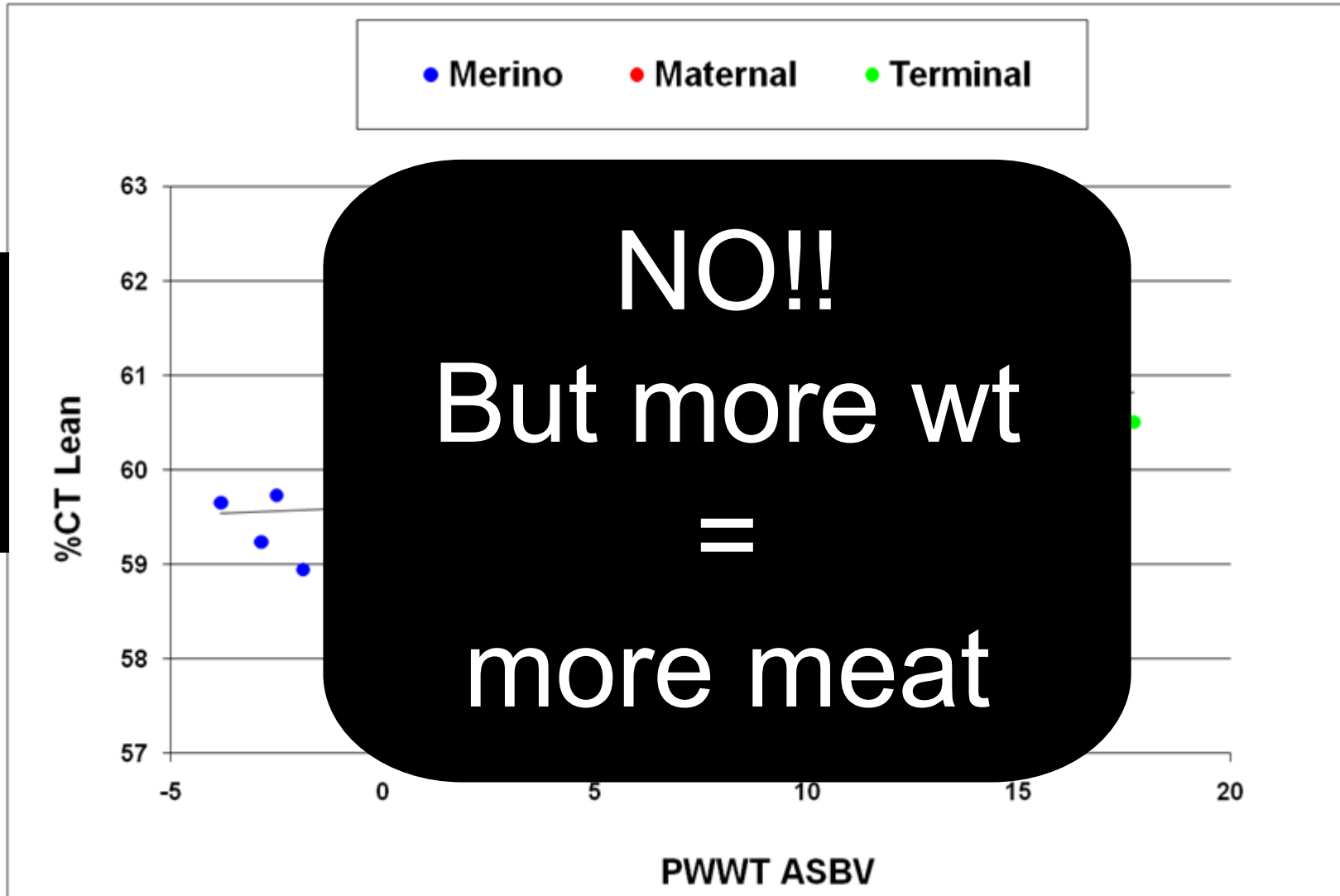
**So which ASBV
delivers yield?**

Yield = % meat

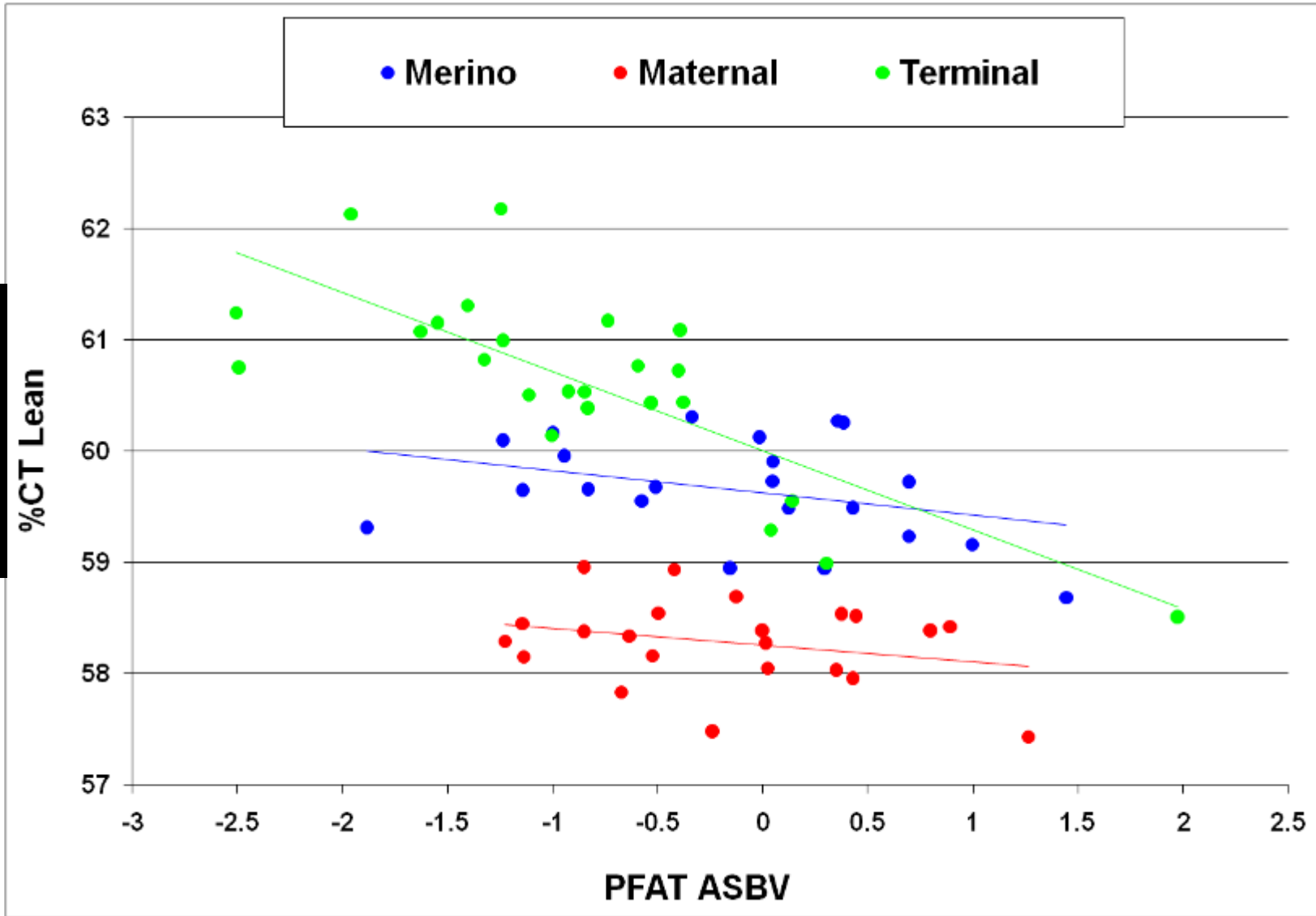
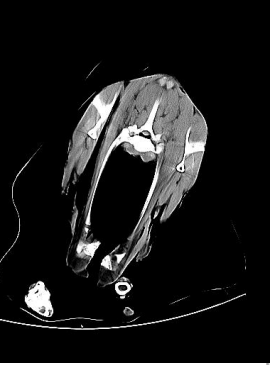
Does PWWT alone deliver yield?



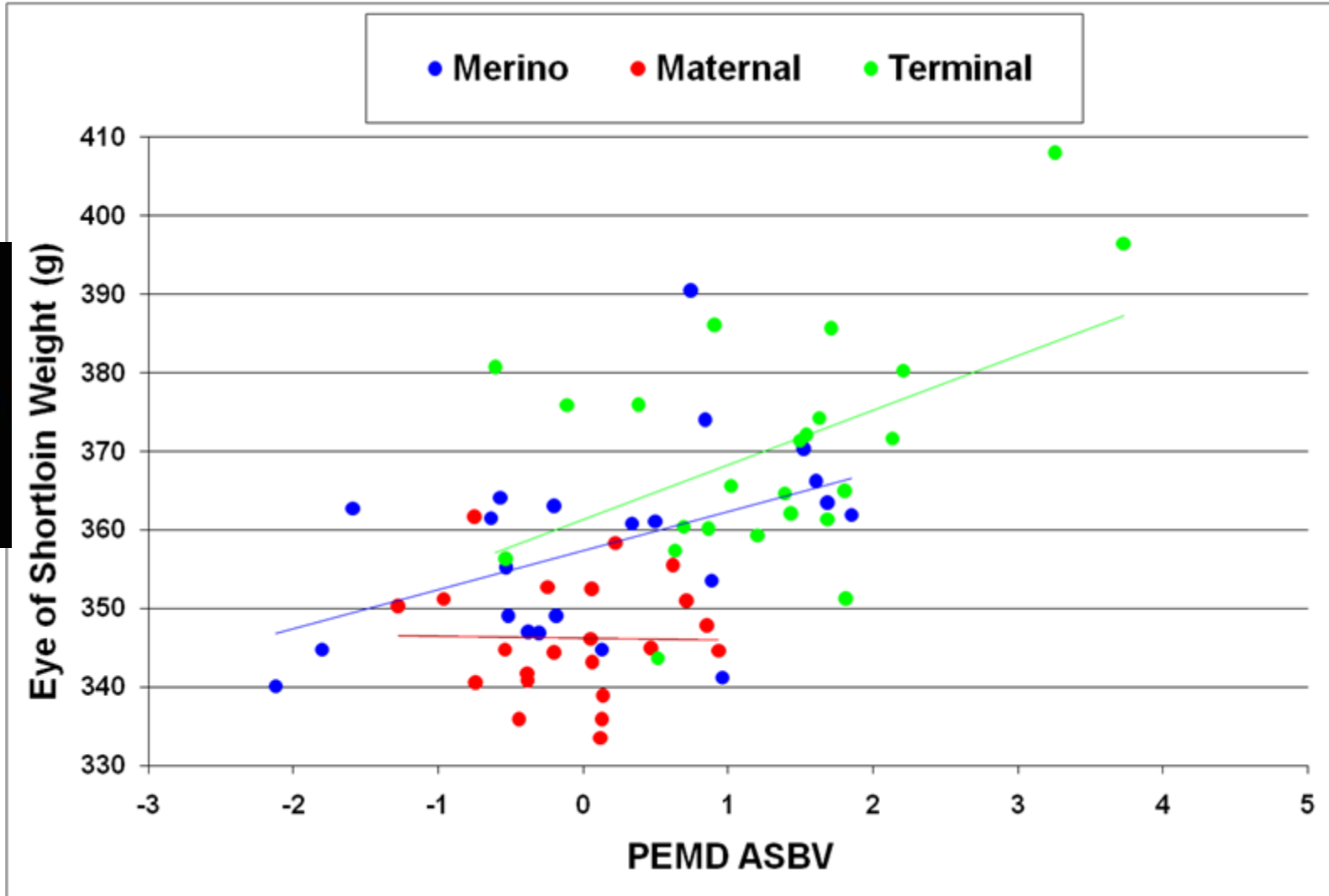
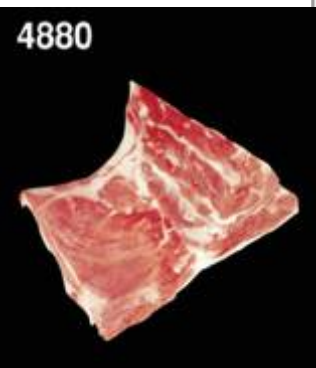
Does PWWT alone deliver yield?



PFAT delivers yield!

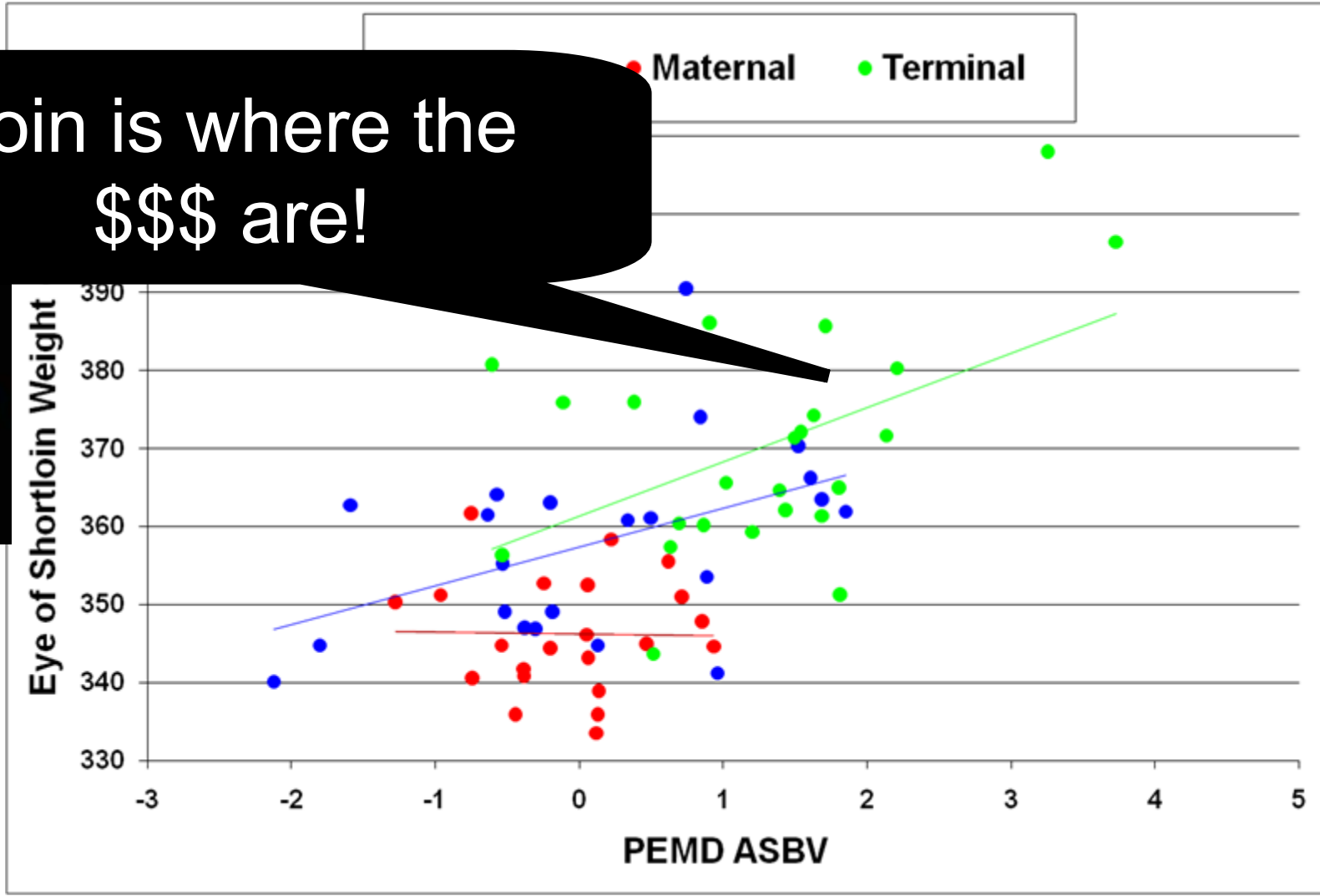


PEMD increases loin muscle weight



PEMD increases loin muscle weight

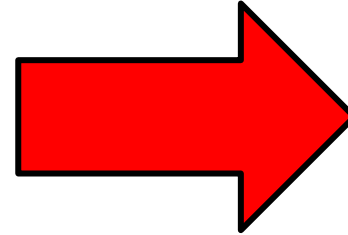
Loin is where the \$\$\$ are!



4880

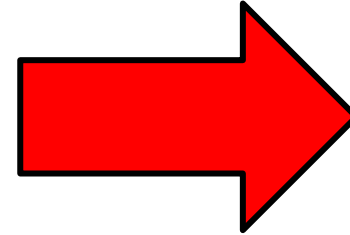


Dressing % = more meat



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

Dressing % = more meat



■ Significant effects:

- Gut fill, diet etc – 5%
- HCW – 4% (17-27kg)
- Sire – 1.5% (big range in all breeds)
- Sex - 0.4% (female higher)
- Merino lower -1%
- Muscle genetics – 1%

1 Dressing % = 480g HCW = \$2.16/hd

Carcase Traits Summary – Terminals



SHEEP GENETICS AUSTRALIA



• national innovation in sheep •



- 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 = heavier carcase, muscle breeding value

Carcase Traits Summary – Terminals



SHEEP GENETICS AUSTRALIA



• meat and food innovation at its core



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

But how do we combine them?

Meat Index

Carcase Plus Index

60% focus on increasing growth

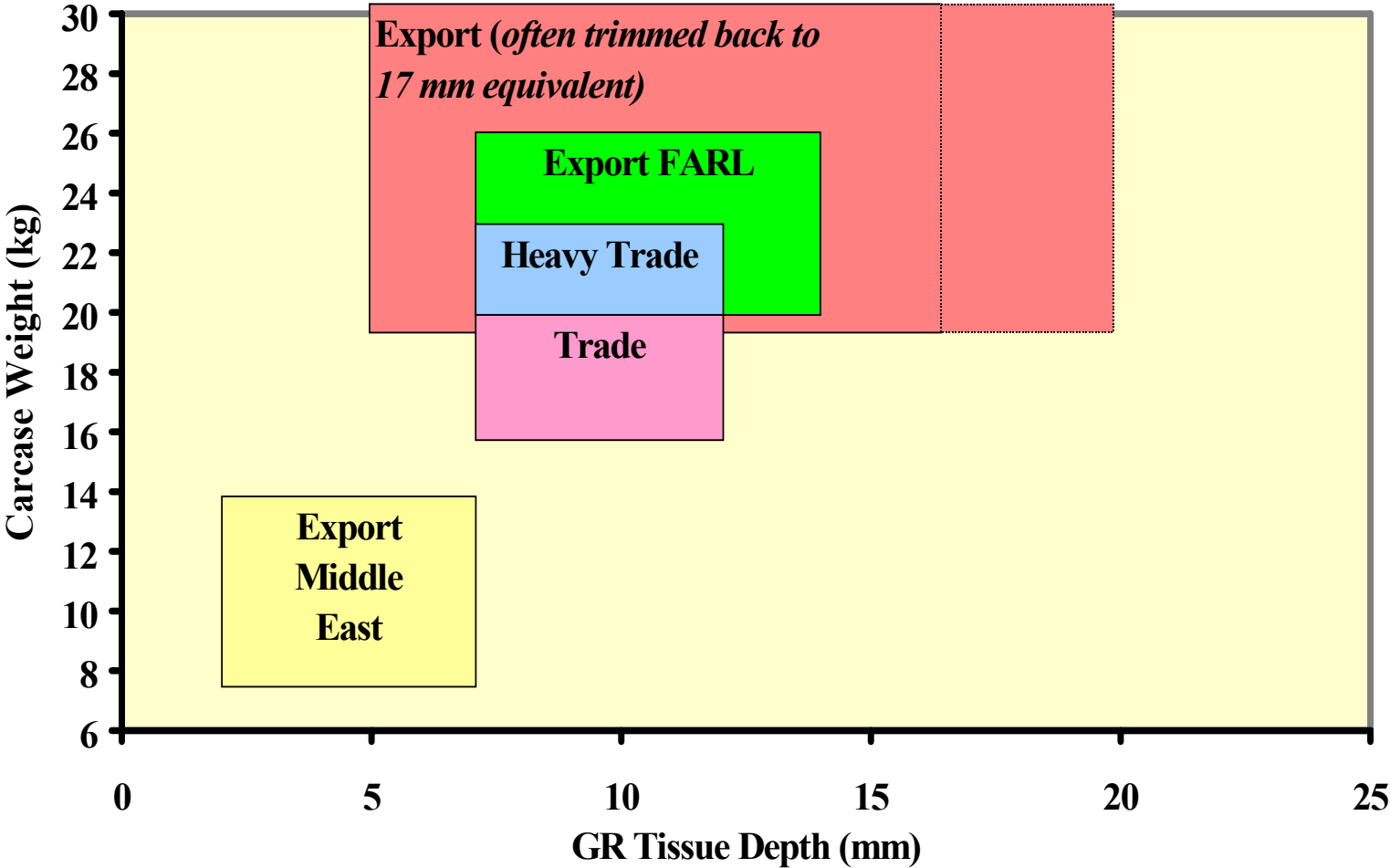
20% focus on reducing fatness

20% focus on increasing muscling



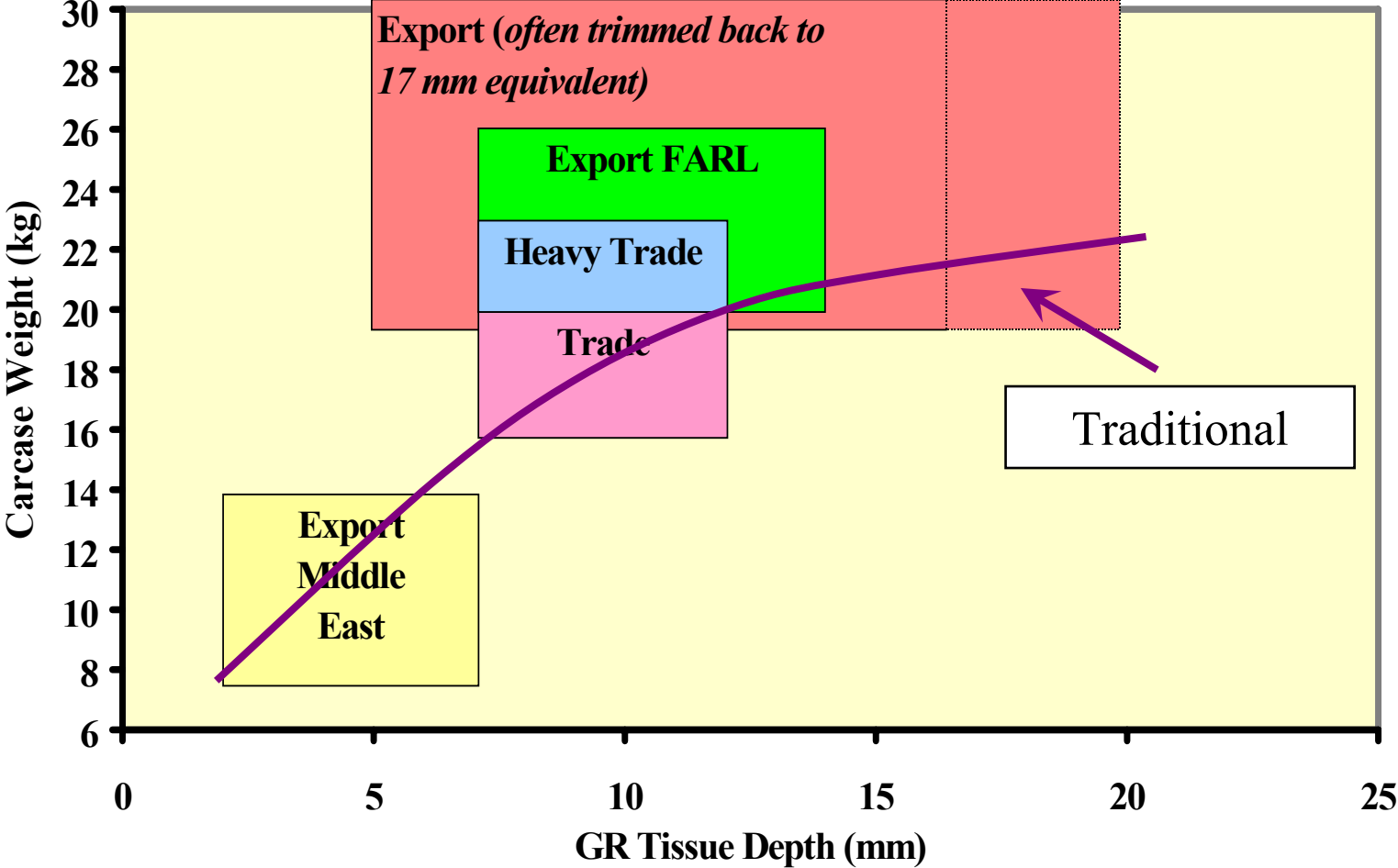
Prime lamb market specifications

Lamb ~ Preferred Market Specifications



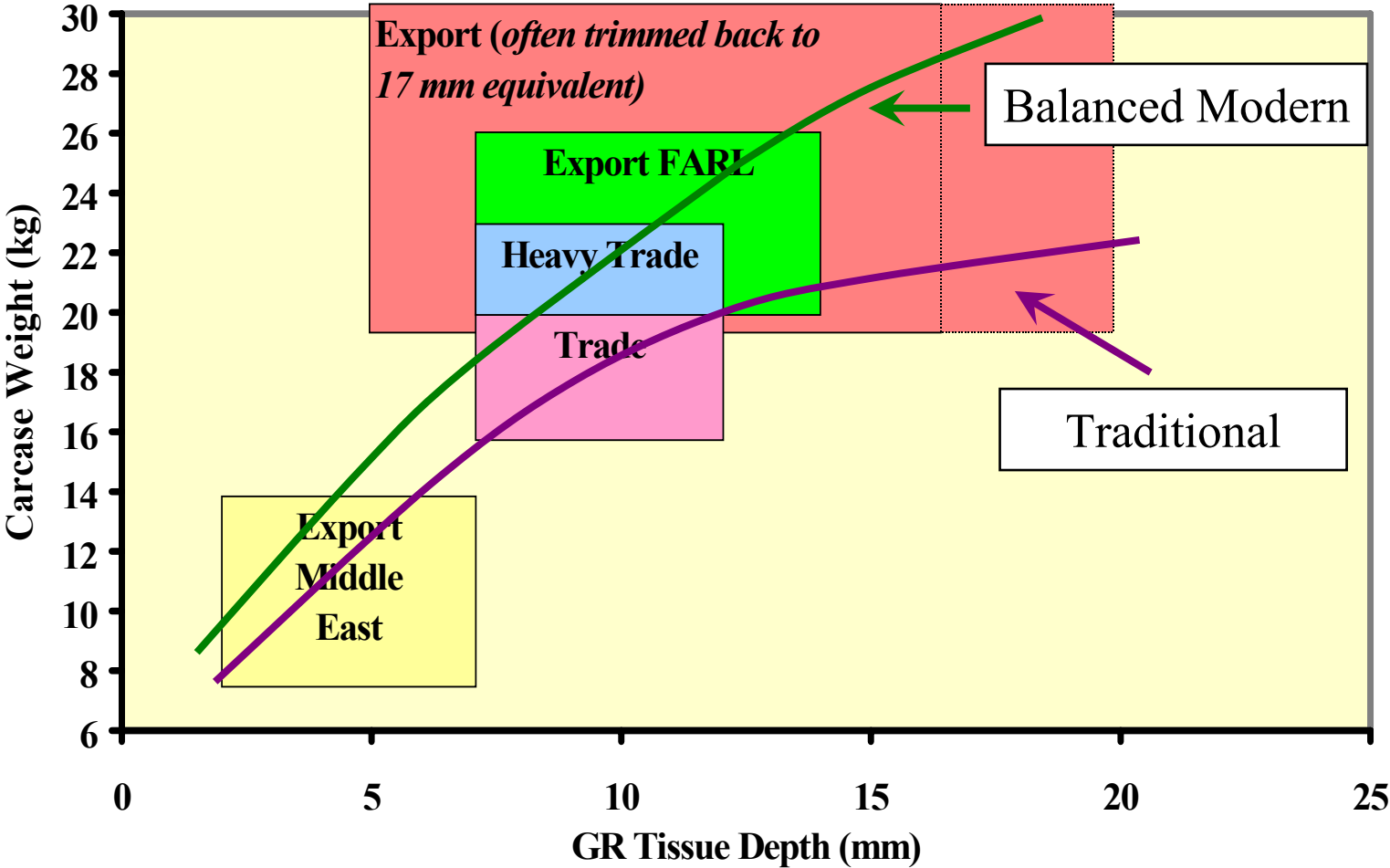
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Lamb ~ Preferred Market Specifications



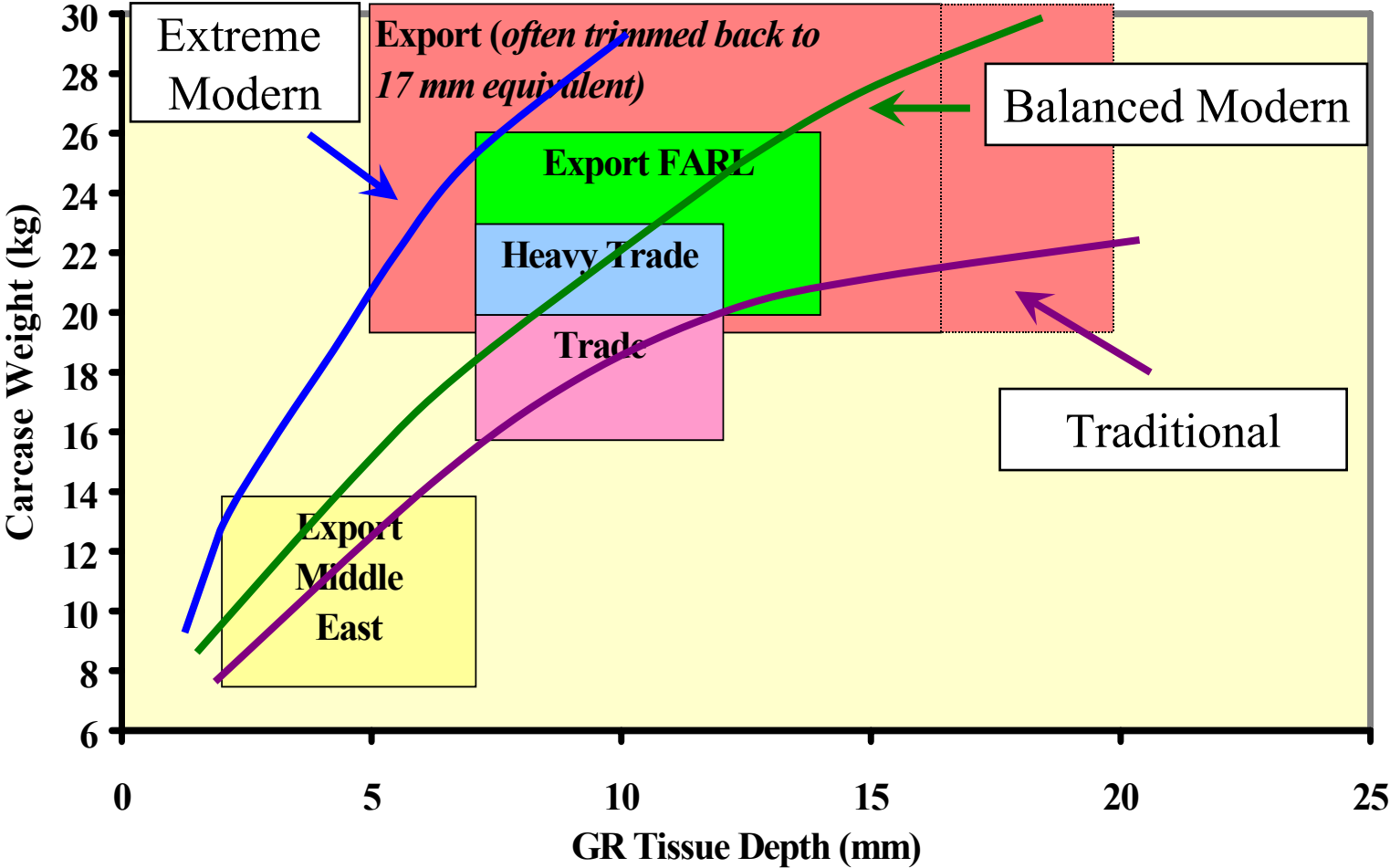
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Lamb ~ Preferred Market Specifications



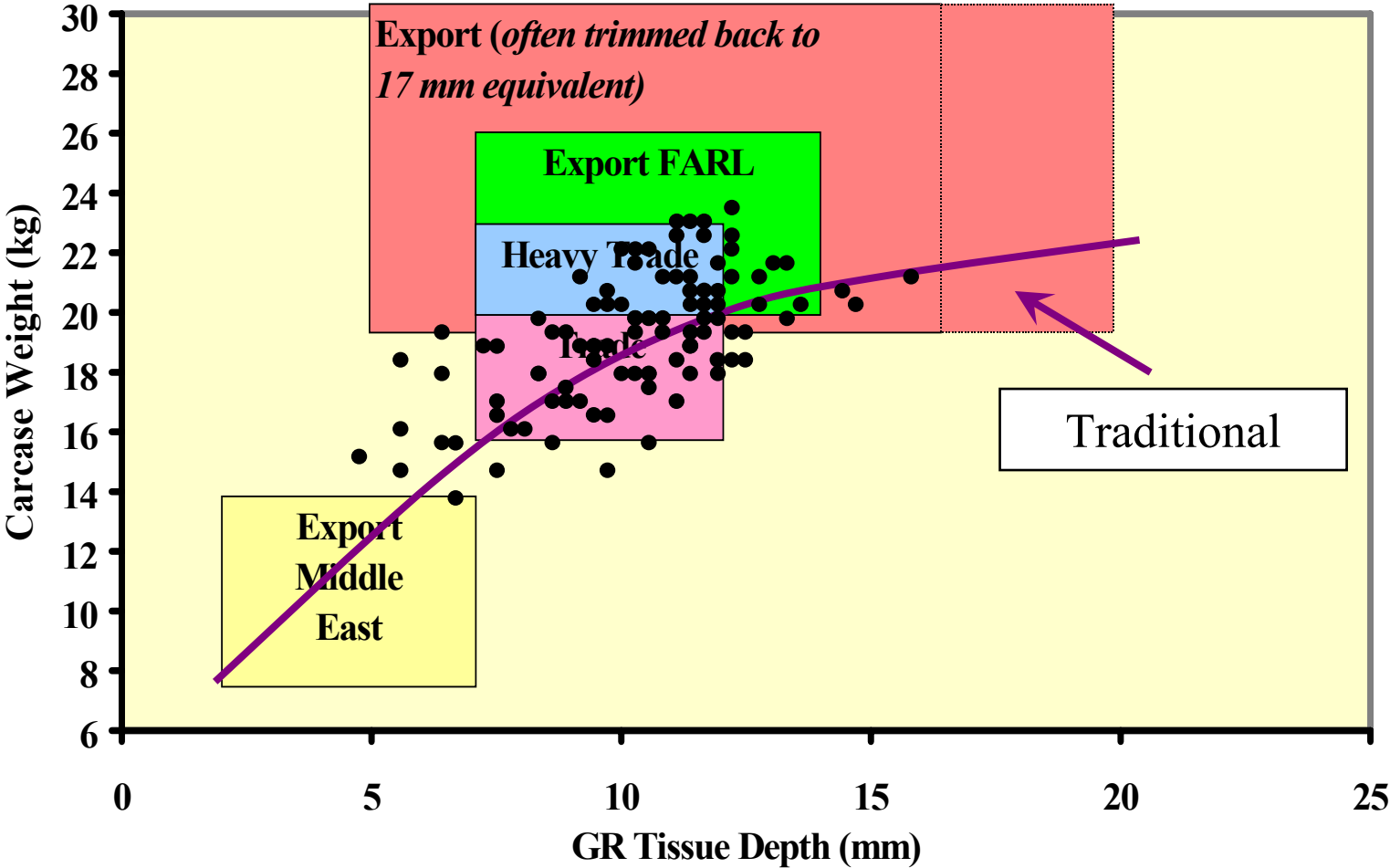
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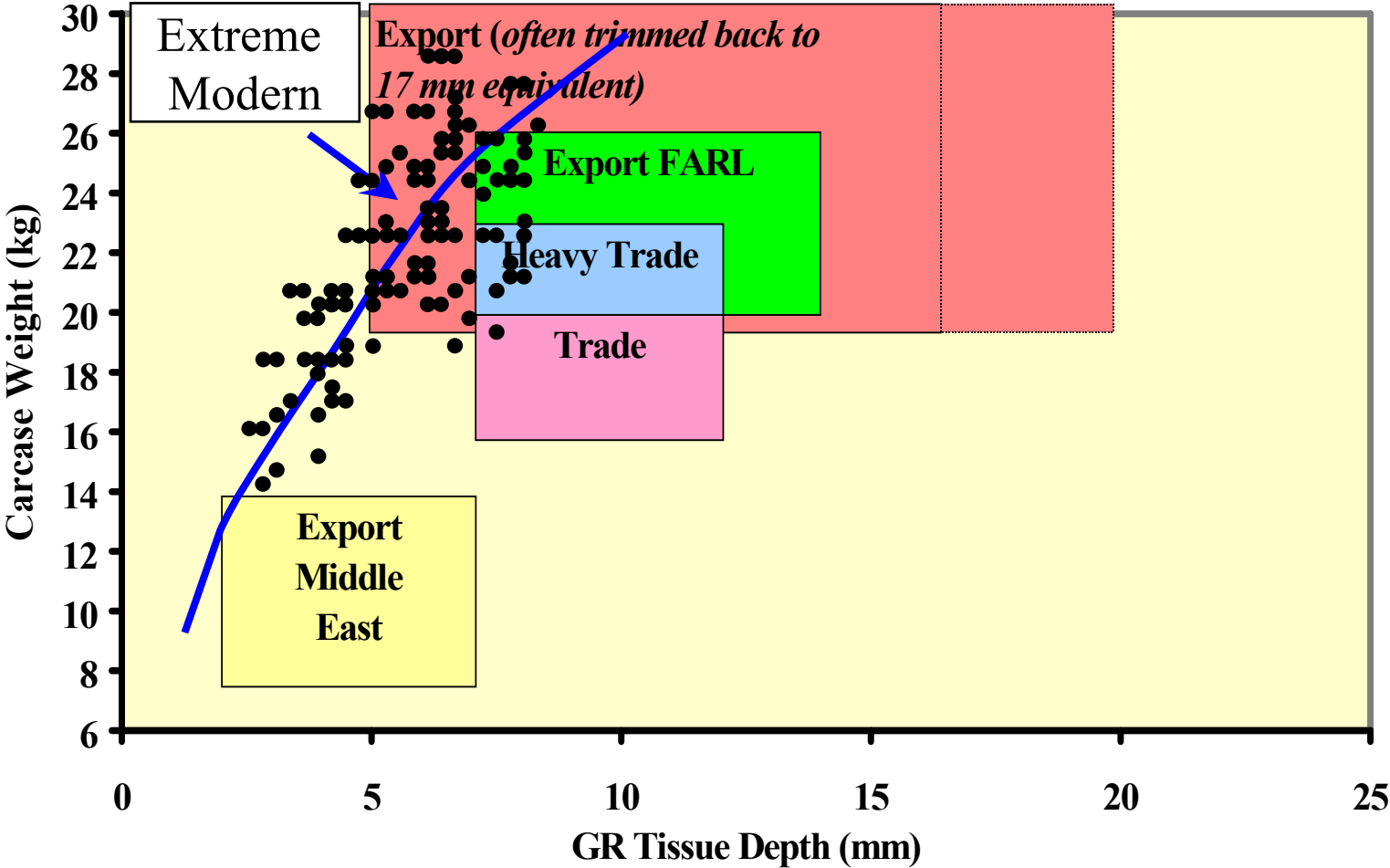
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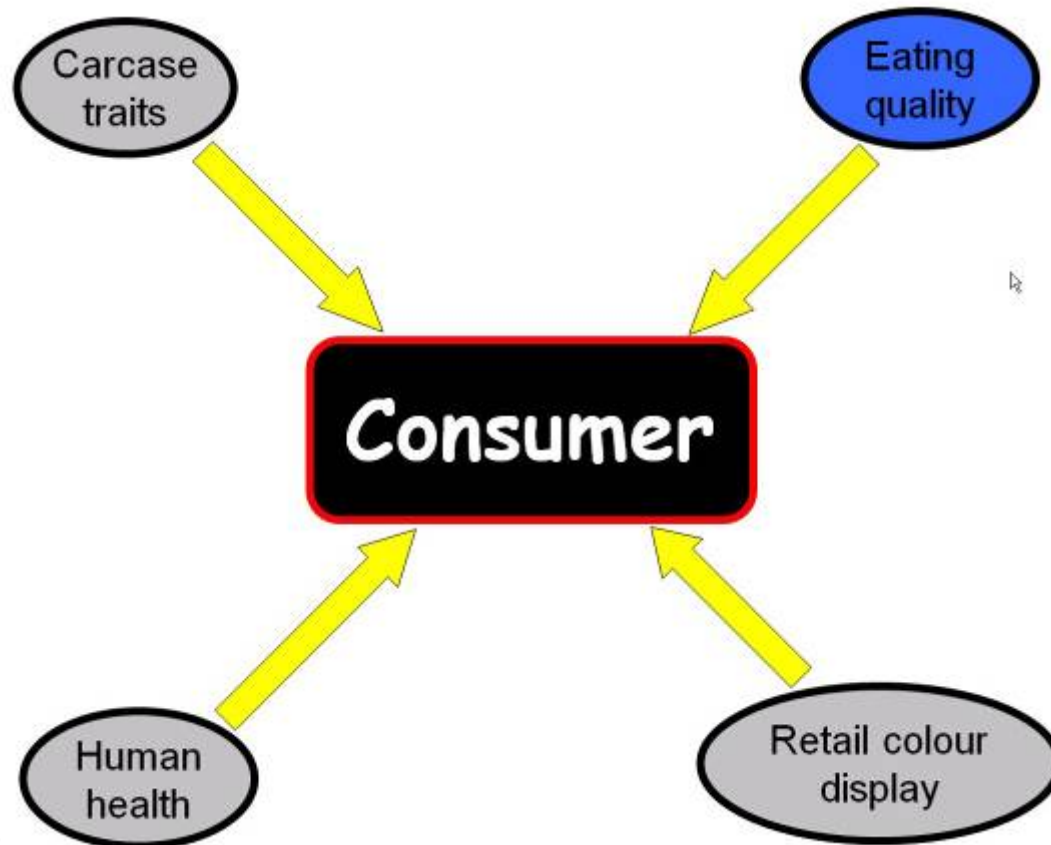


Prime lamb market specifications

Lamb ~ Preferred Market Specifications



We are watching for meat quality impacts!



Yield & Eating quality

Something to watch!

Juiciness



Intramuscular Fat 4-5%

Health Claims

- Low fat claim <3%
- Heart Tick <10%

(Phenotypic correlation = -0.35 for LMY vs IMF)

Dark Cutting

Low muscle glycogen at slaughter



Dark Cutting

Low muscle glycogen at slaughter



Muscling Increases
Glycogen!

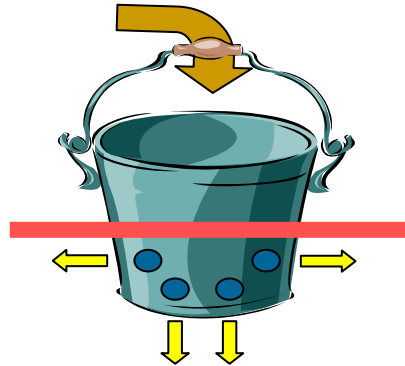
Eating Quality – MSA lamb

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



Eating quality is a supply-chain issue

Producers role 1 – glycogen



- Muscle sugar or glycogen
- = nutrition in the last 2-3 weeks
- Xbred – 100gm/d
- Merino – 150gm/d

- ↑ Muscle genetics for Merinos/Maternals



Producers role 2 – fatness

- >6mm GR (Score 2)
- Score 2/3 ideal
- Overdone carcass fatness **DOES NOT** guarantee intramuscular fat



Producers role 3 – intramuscular fat NEW

- Ideally 4-6%
- Current average is 4.2%
- How do we underpin IMF ?



Producers role 3 – intramuscular fat



SHEEP GENETICS AUSTRALIA



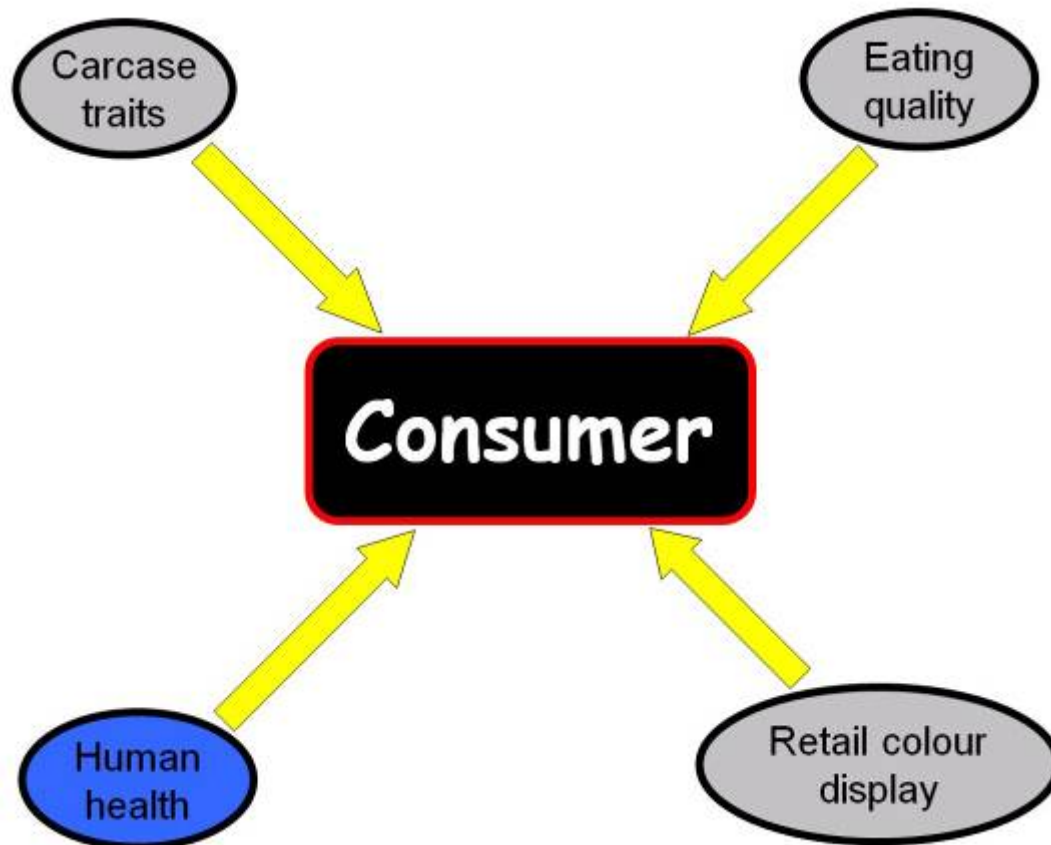
• australian wool
innovation



- IMF breeding value
- This will allow us to break the –ve correlation between lean meat yield and IMF
- Also investigating other genetics effects (topside tenderness)



We are watching for human health impacts!



Human health

Lamb: Good source of iron
2.2mg/100g

- We're right on it! – don't go lower (genetics)

Iron and Zinc

(2.2mg/100gm good source)

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

Variance \approx 4.5, SEM \approx 0.25, n=2,001

Human health

Lamb: Source of Omega 3
30mg/100g

- Plus they are heritable!
- Chicken and pork don't cut it...

Conclusions - LMY

- Still a very important trait
- Consumer acceptance
- Efficiency on farm
- Efficiency post farm gate
 - ✓ Growth
 - ✓ Muscle
 - ✓ Fat
 - ✓ Dressing %

But now can balance this with

- Eating quality
- Human health

Conclusions – Human health

- We are in a position to manage iron levels
- Omega 3 – on average we meet a claim
- Both under significant genetic control

Conclusions – How powerful is all this

- Industry can really design the product they want
- No other industry is currently in this position

Conclusions – Supplychain utilisation

- Is this all just too much
- Before its time
- Clearly we think not – the lamb Industries maturity is just about right for it
- Already have a number of supplychains interesting in utilising the new information

Outcomes

Position AUS lamb as premier meat on Planet!

Products and services

- MMfS – Market Focused Lamb and Sheepmeat Production
- EDGENetwork – Improving Lean Meat Yield
- MSA Tip n Tools
- MSA producer training
- Sheep Genetics Workshops – LAMBPLAN and MERINOSELECT
- Sheep CRC



Carcase - preliminary heritabilities

■ HCW	High
■ LMY (%)	Moderate
✓ Eye muscle	Moderate
✓ Fat depth	High
■ Dressing %	High

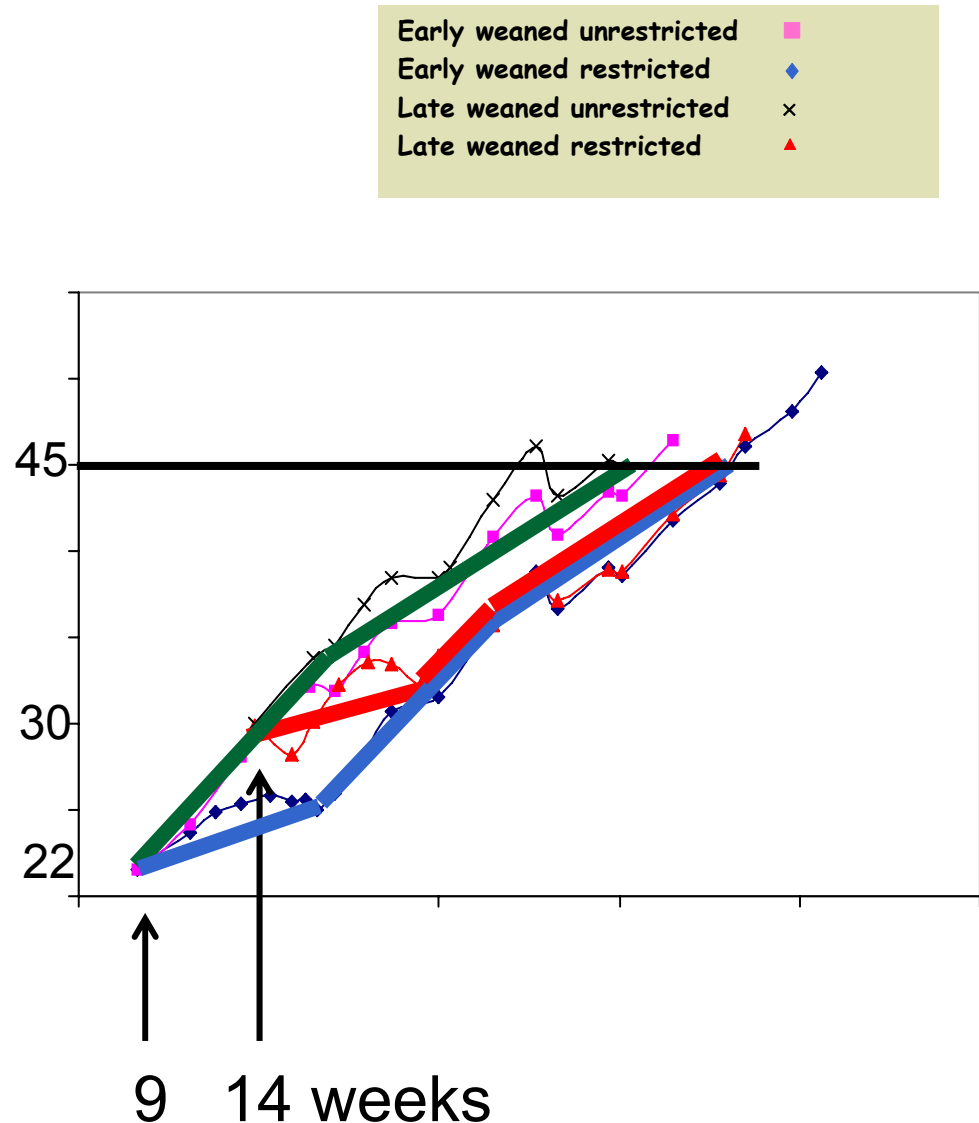
Growth path

- Early weaning 9 vs 14 weeks (22 vs 30kg)
- Growth check vs continuous growth
- Elite carcass genetics still delivered

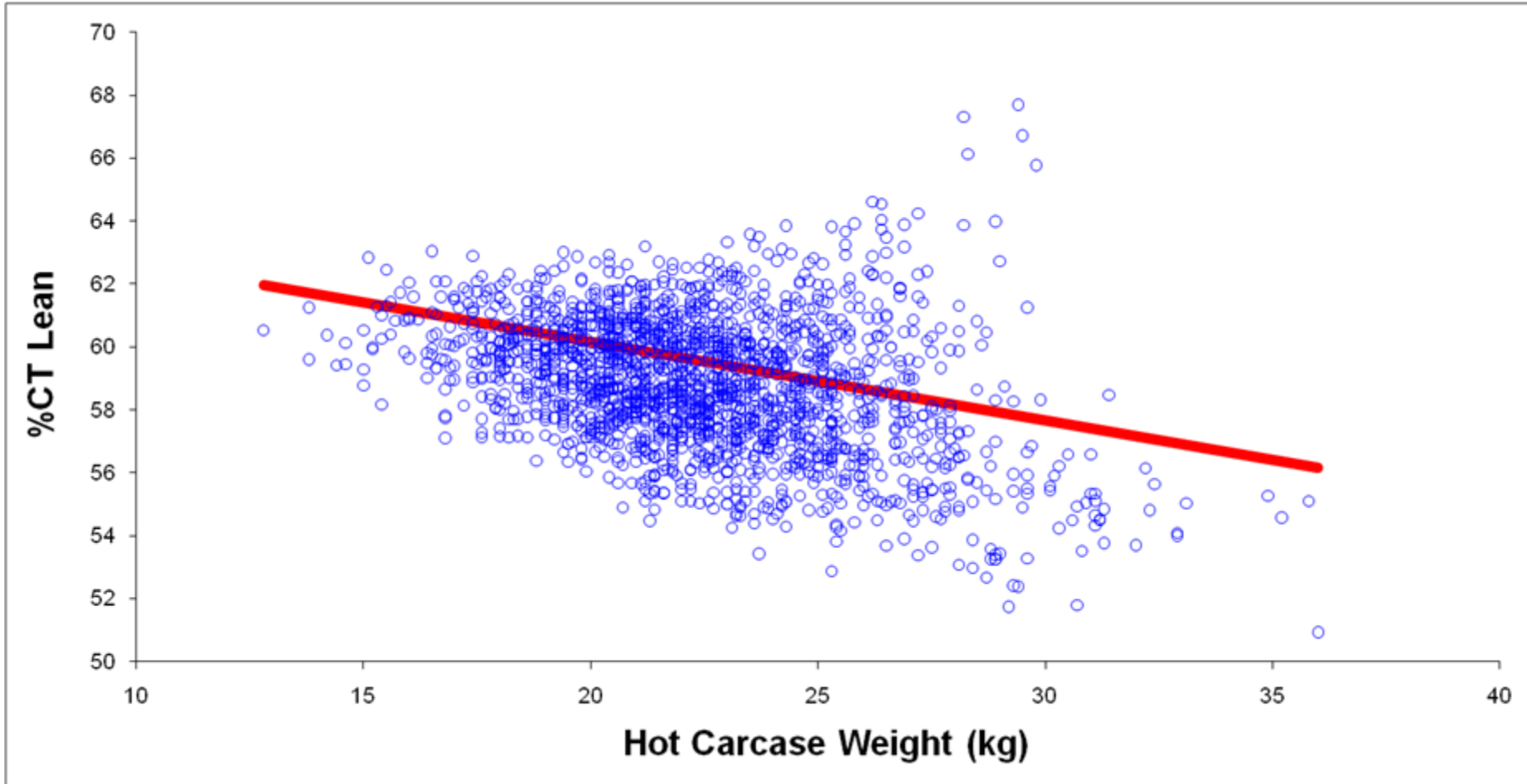
- You get it anytime you feed'em and they will come back quicker

Growth path x genetics

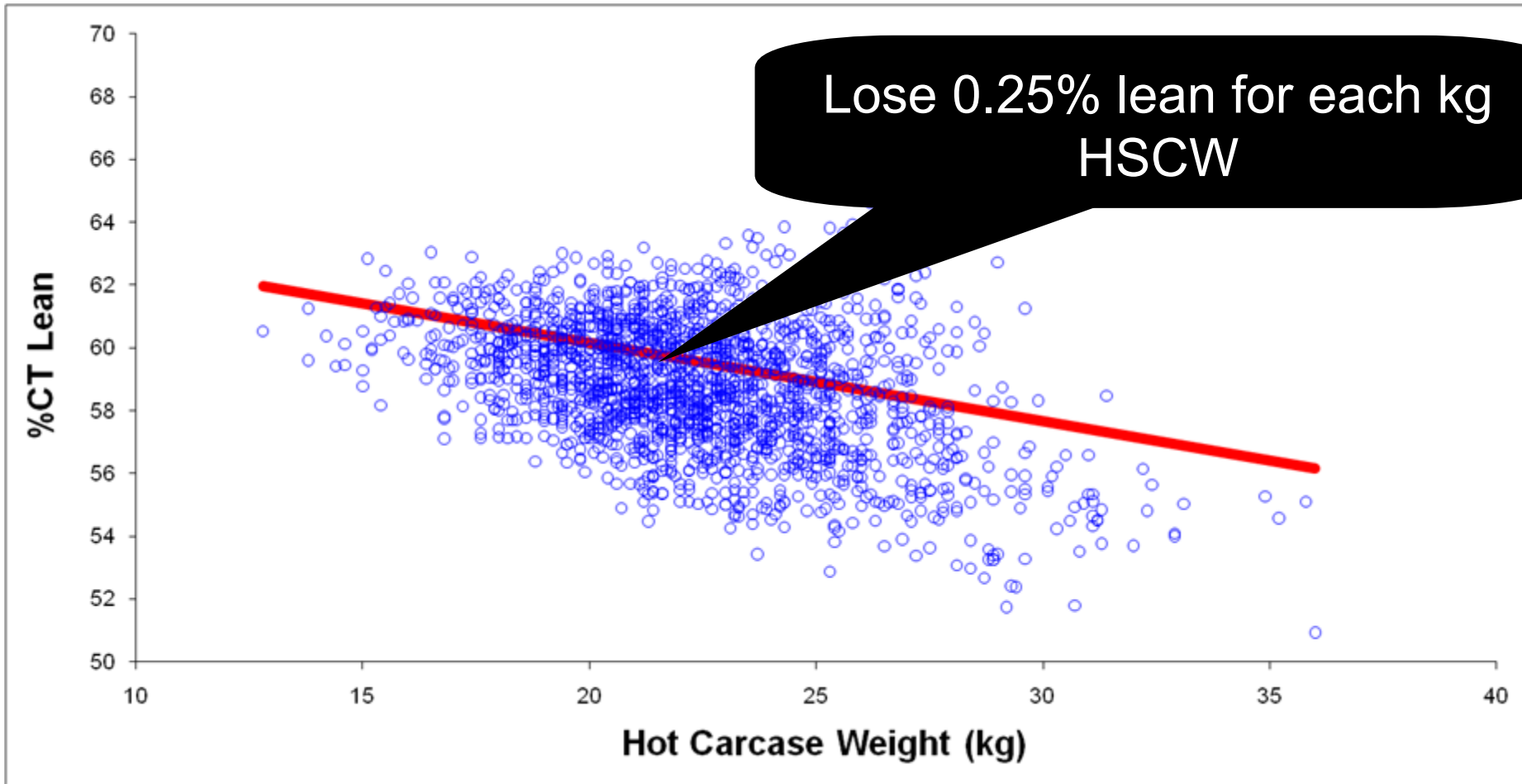
- Weaning wt no effect !
- 60d restriction 23d behind at end
- Every 5 units PWWT gave extra 11g/d
- You get it anytime you feed'em and they will come back quicker



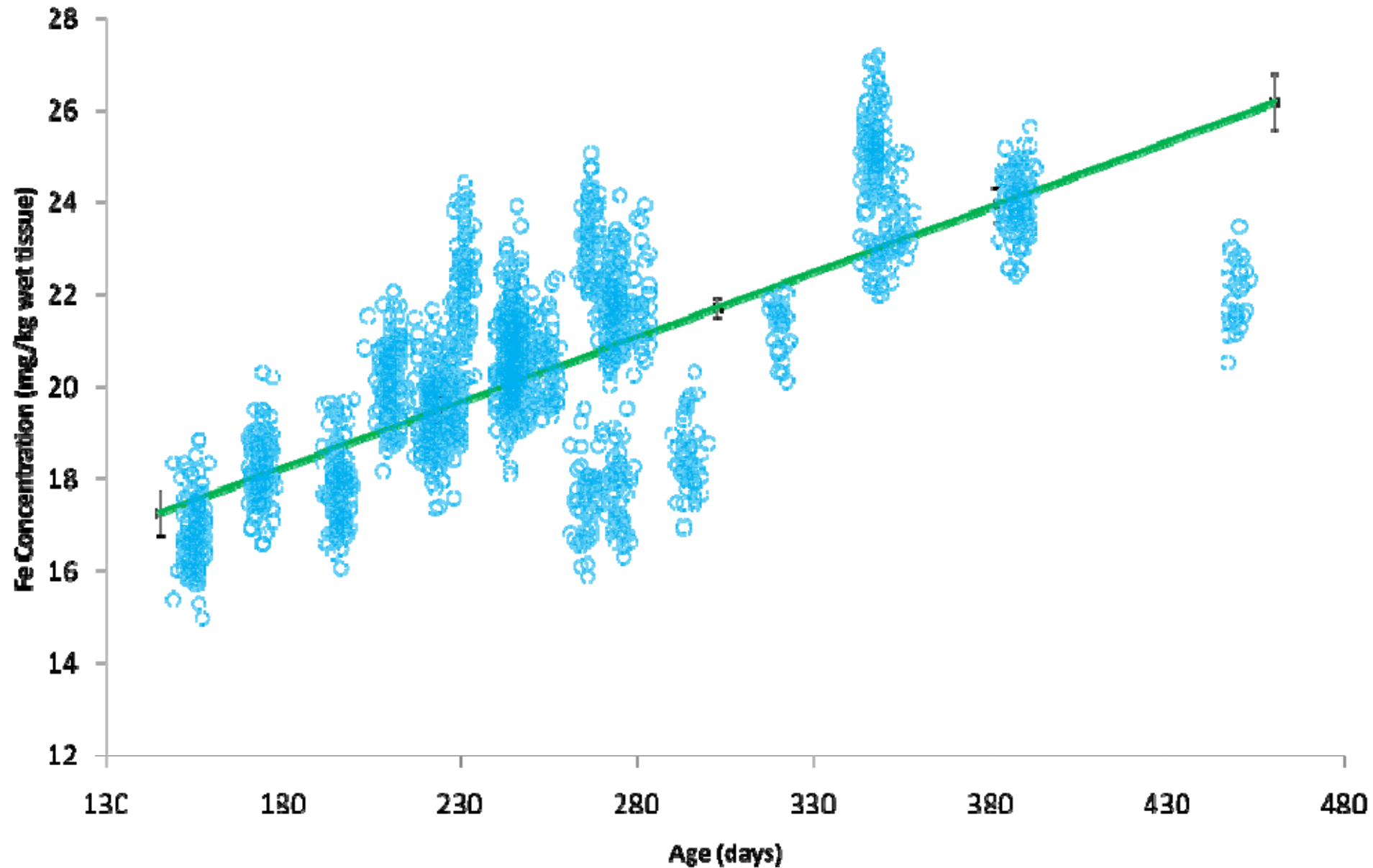
Even more important for supply chains targeting heavy carcasses!



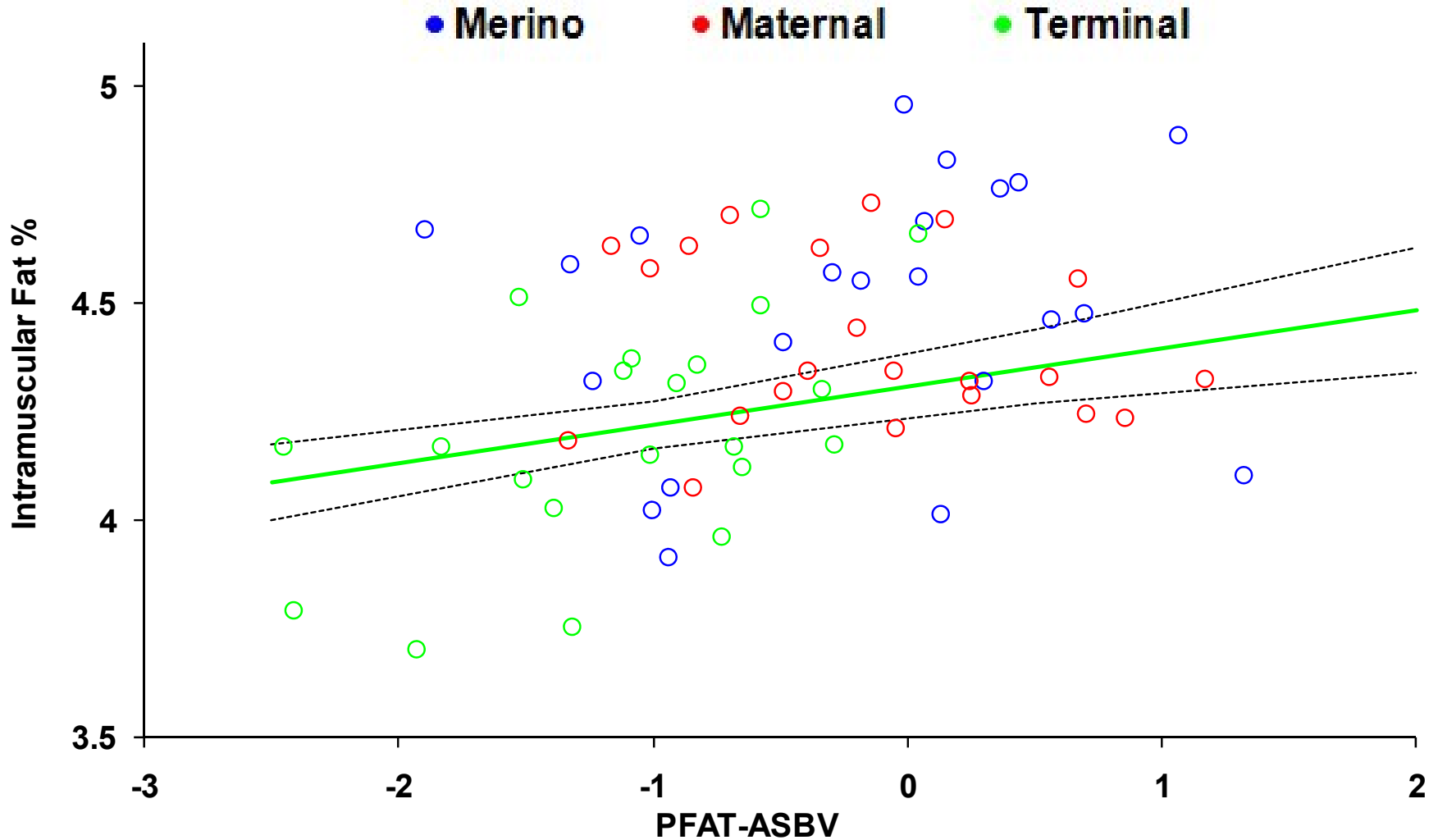
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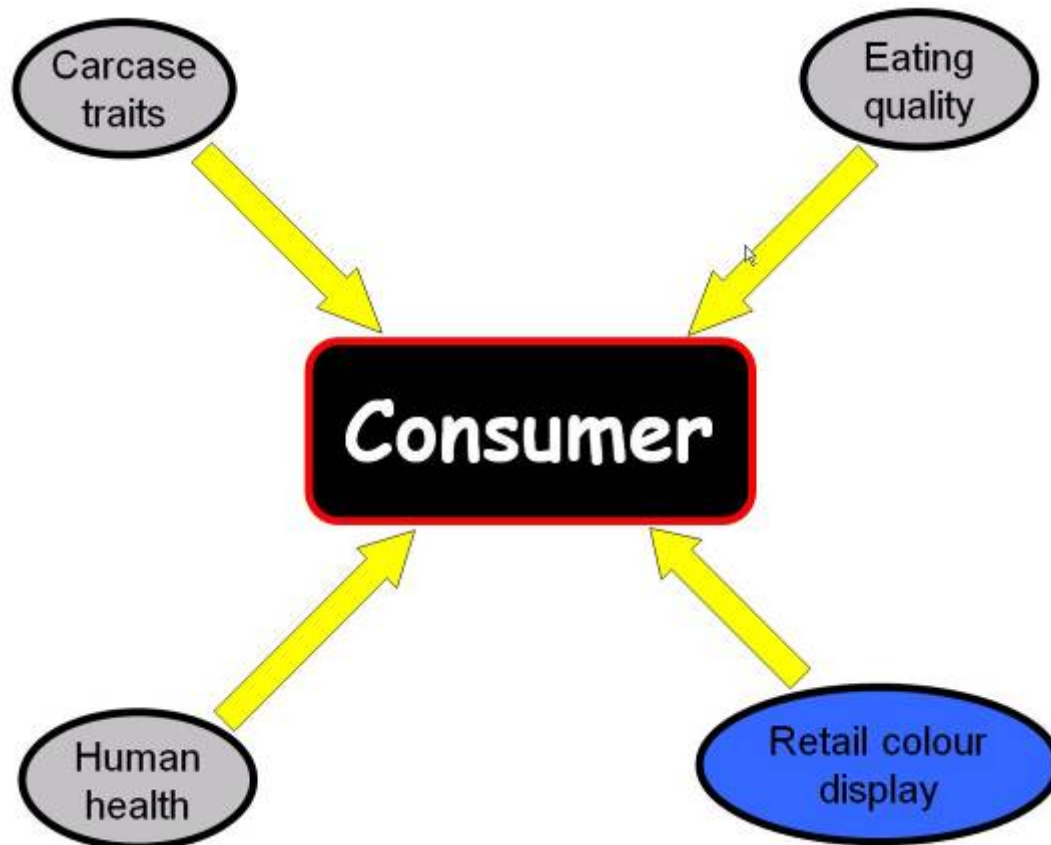
Effect of age on Iron levels



PFAT reduces Intramuscular Fat!



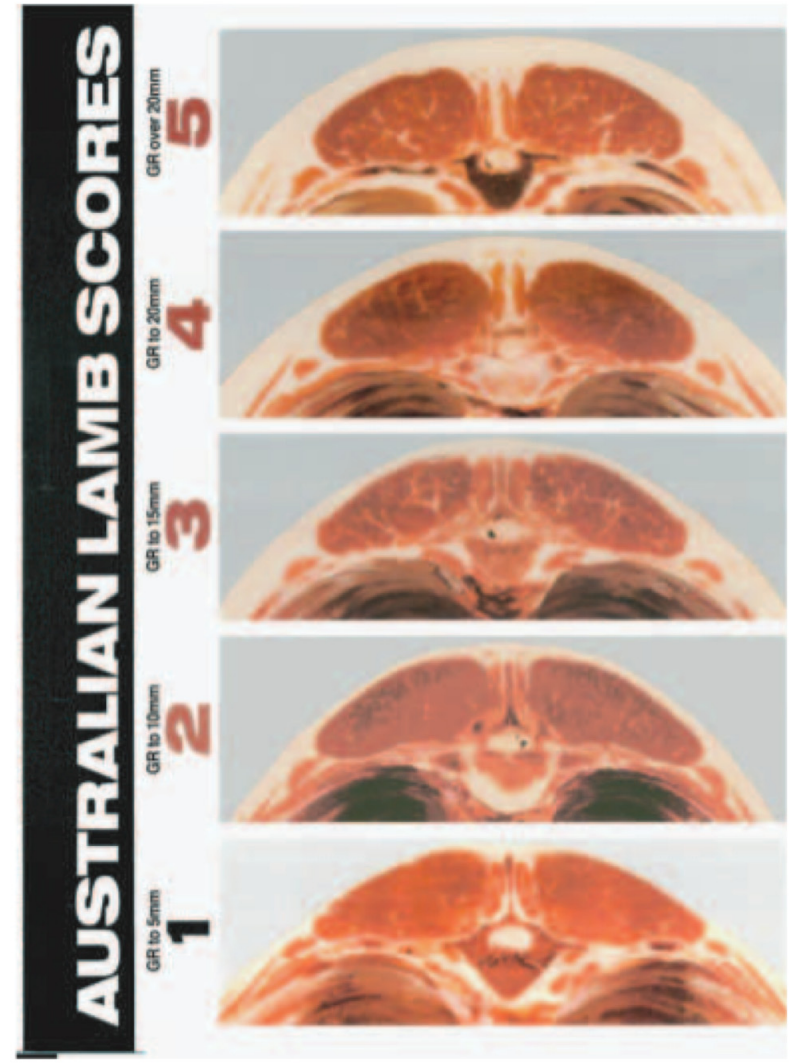
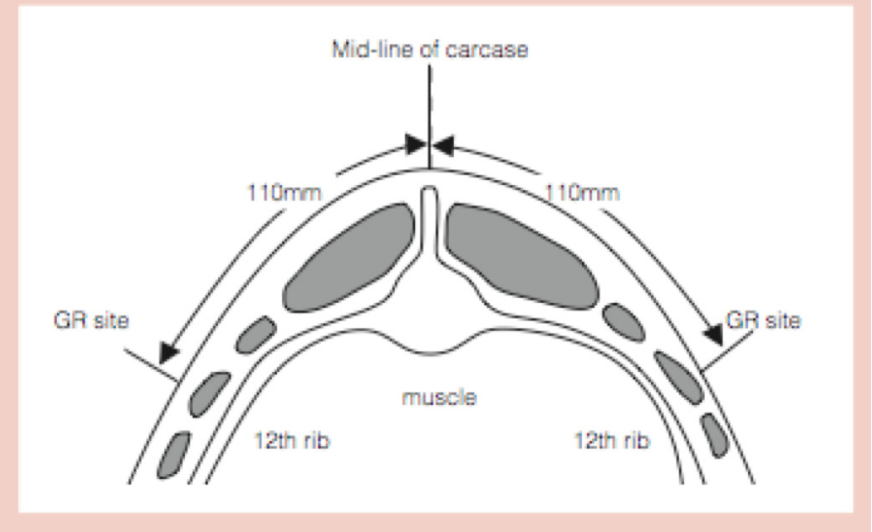
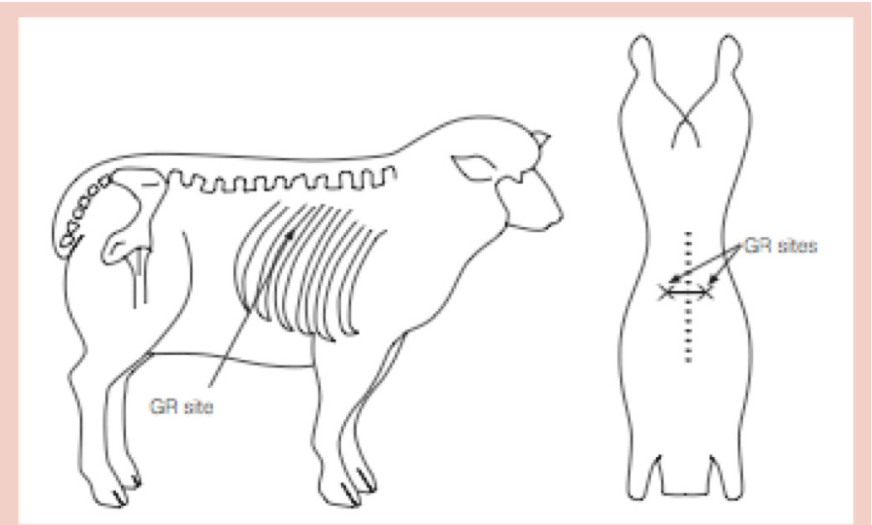
Colour Stability



**Mate - the well bred ones are
bullet proof**



Get on top of fat scoring – its easy !



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Lamb ~ Preferred Market Specifications

