



Aussie lamb – the worlds best

Dave Pethick



Summary

- n Lean Meat Yield
 - Ø its importance
 - Ø Drivers
 - Ø Measurement
- n Eating Quality & MSA
- n Human health snapshot

Lean meat yield

Very important for profitability and consumer satisfaction - consumers prefer meat NOT bone and fat !

Lamb 'lean' is expensive



Trim lamb Rack

\$39.99/kg



Trim lamb Rack

\$59.33/kg

We need to push lean meat yield

Beef is cheaper !



Tenderloin

\$38.99/kg



Cube Roll

\$30.00/kg

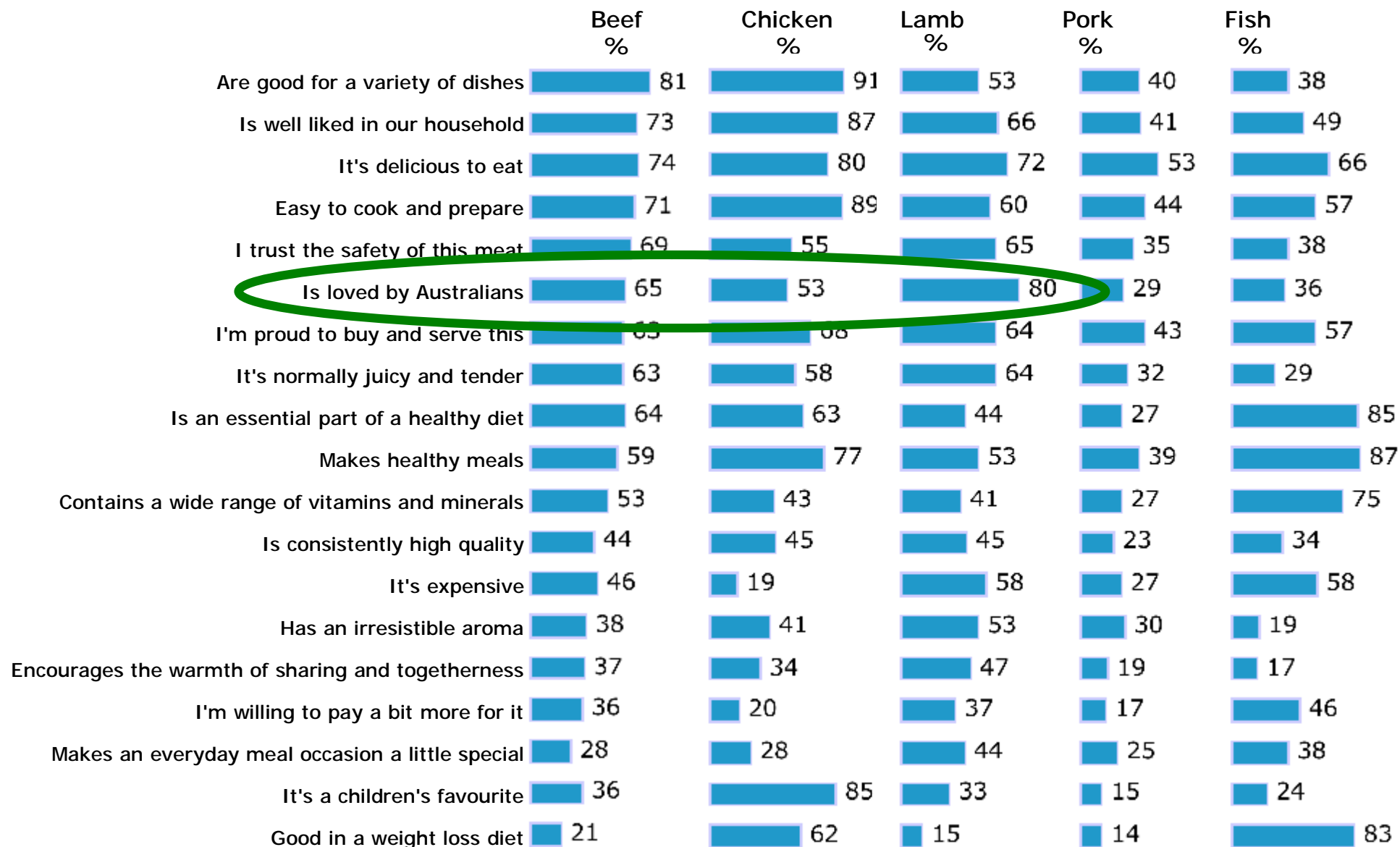
Mean serves of meat types per week based on Mums with Kids

	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

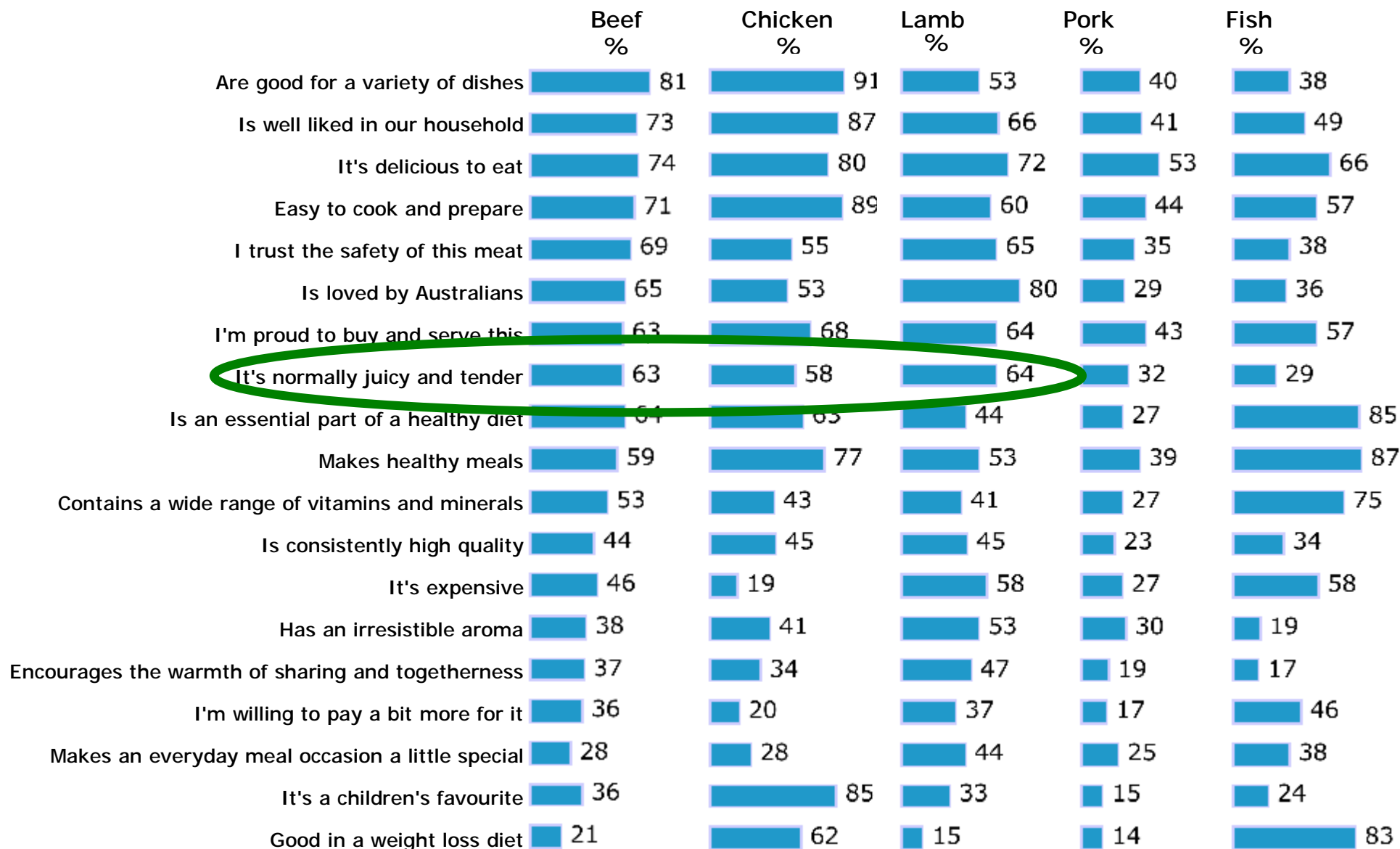
Based on mums with kids aged 5-17 yrs old

Green= significantly higher than Jan-Mar 09
 Red= significantly lower than Jan-Mar 09

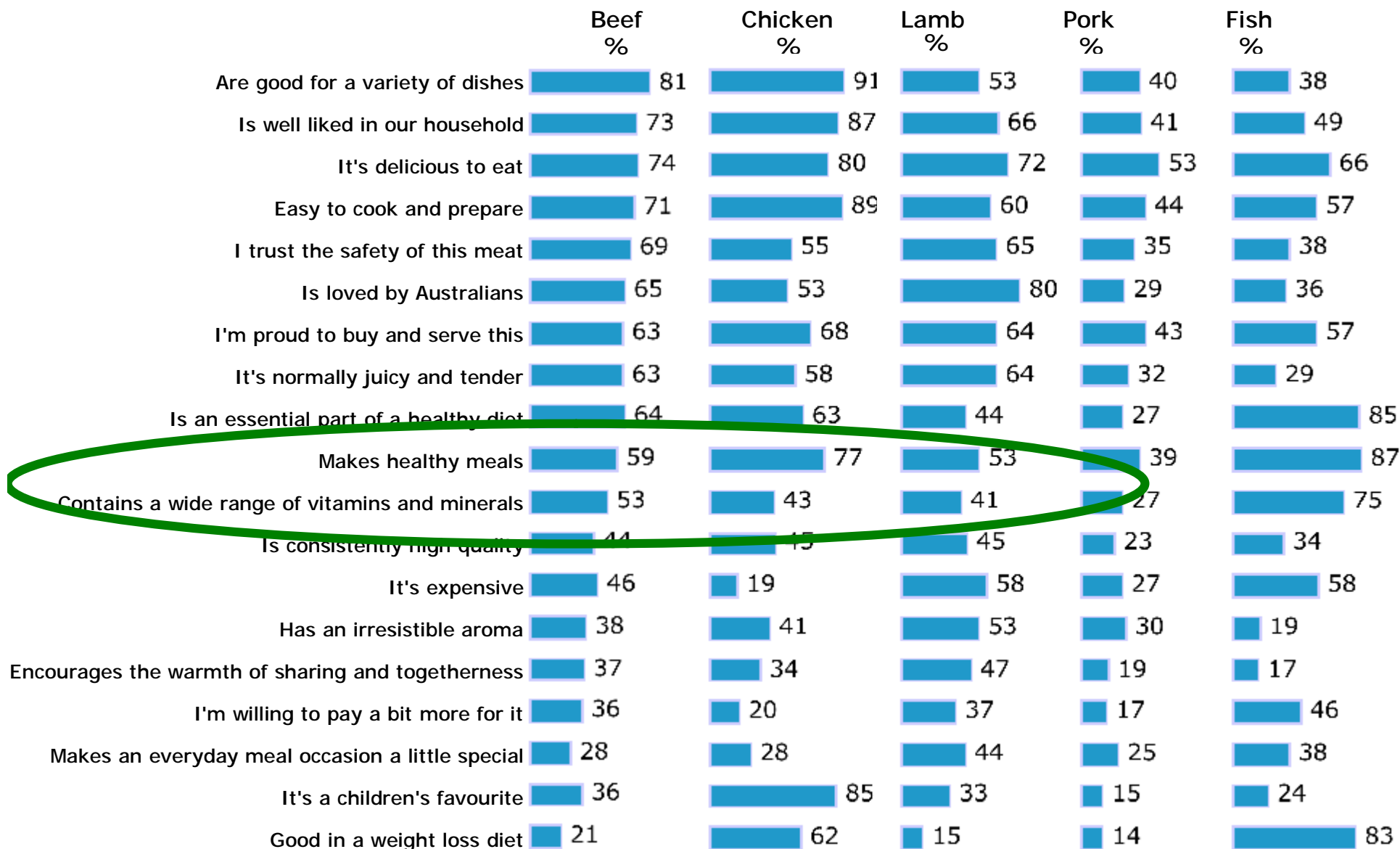
Image - Mums



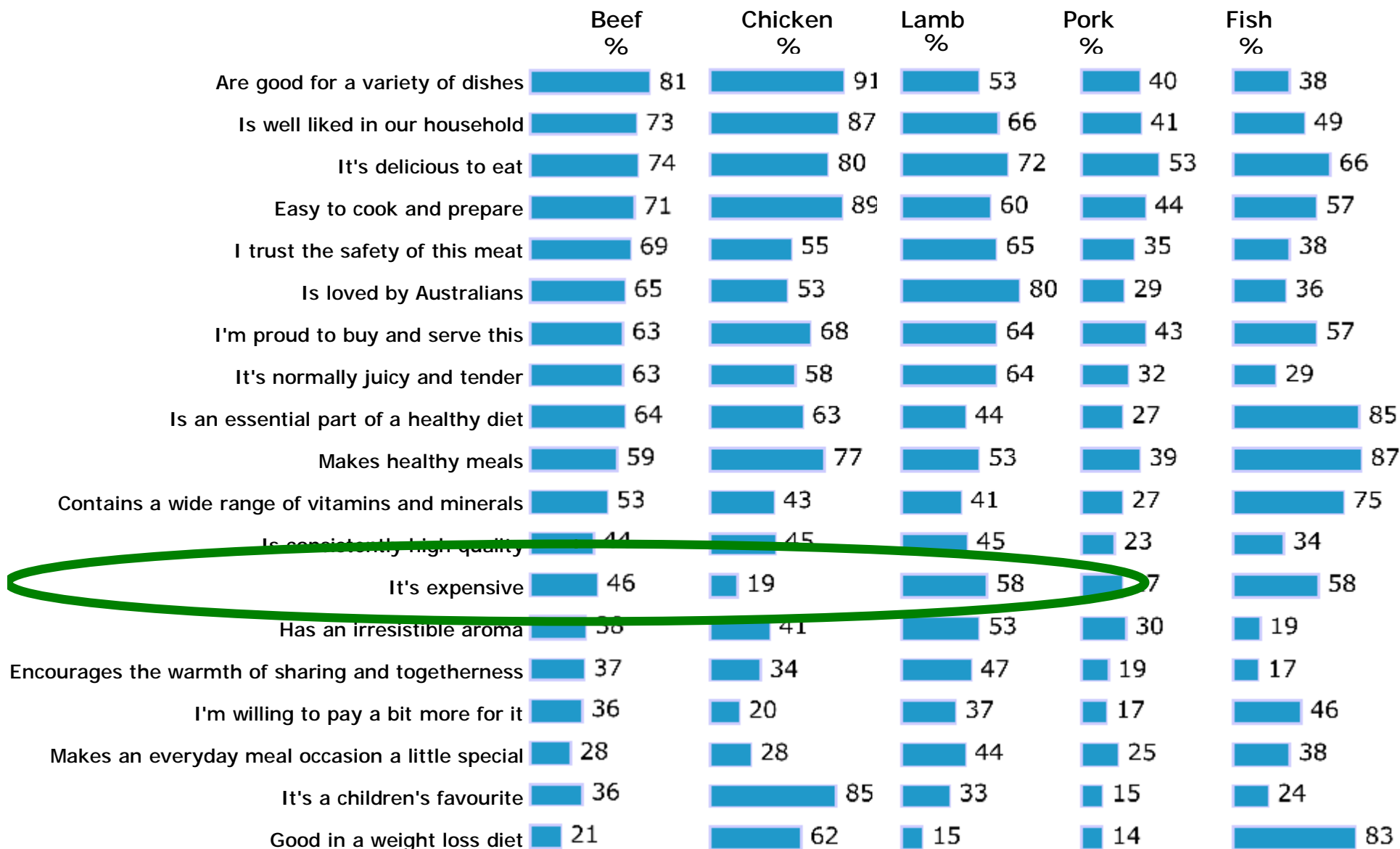
Imagery - Mums



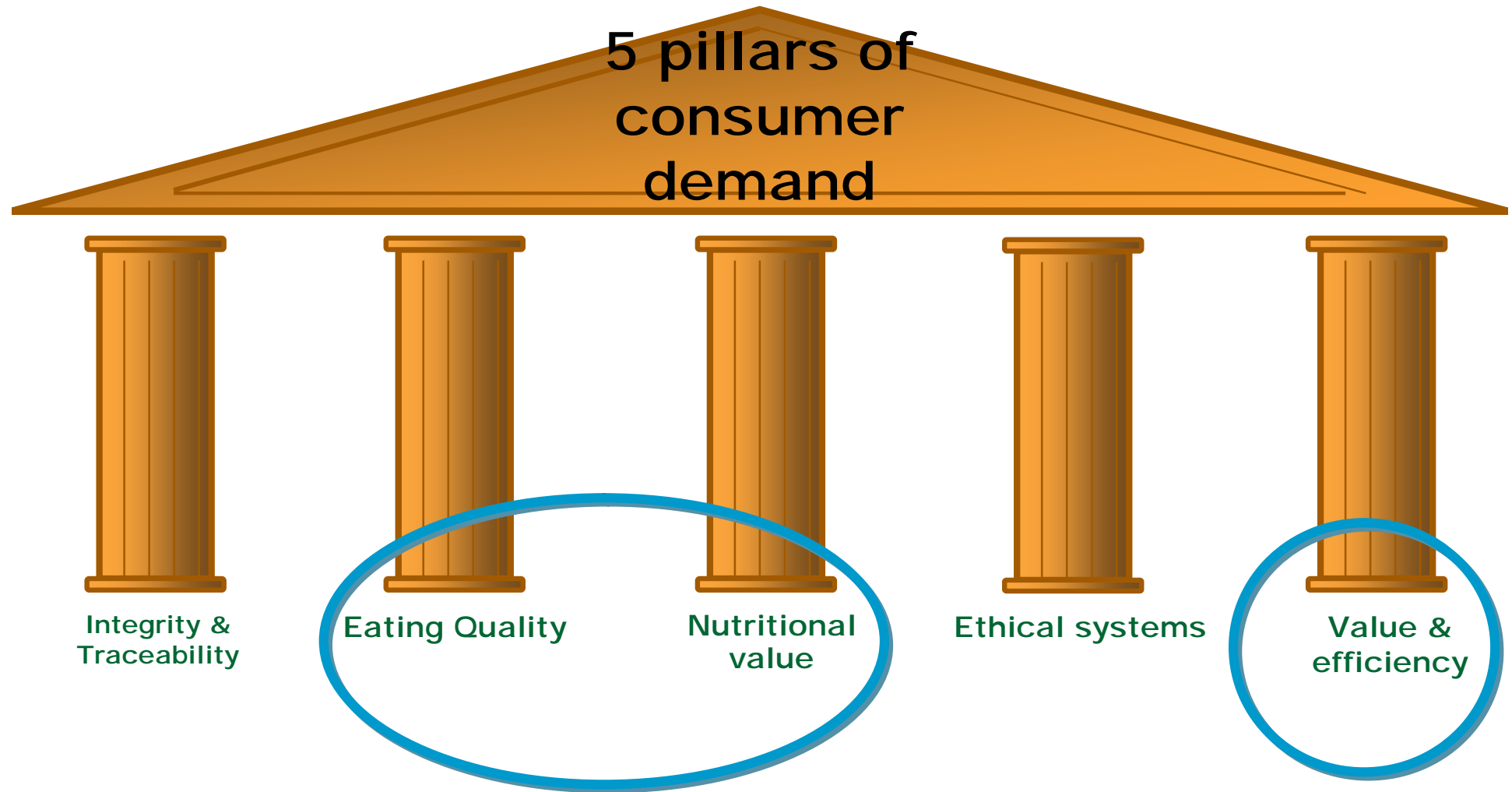
Imagery - Mums

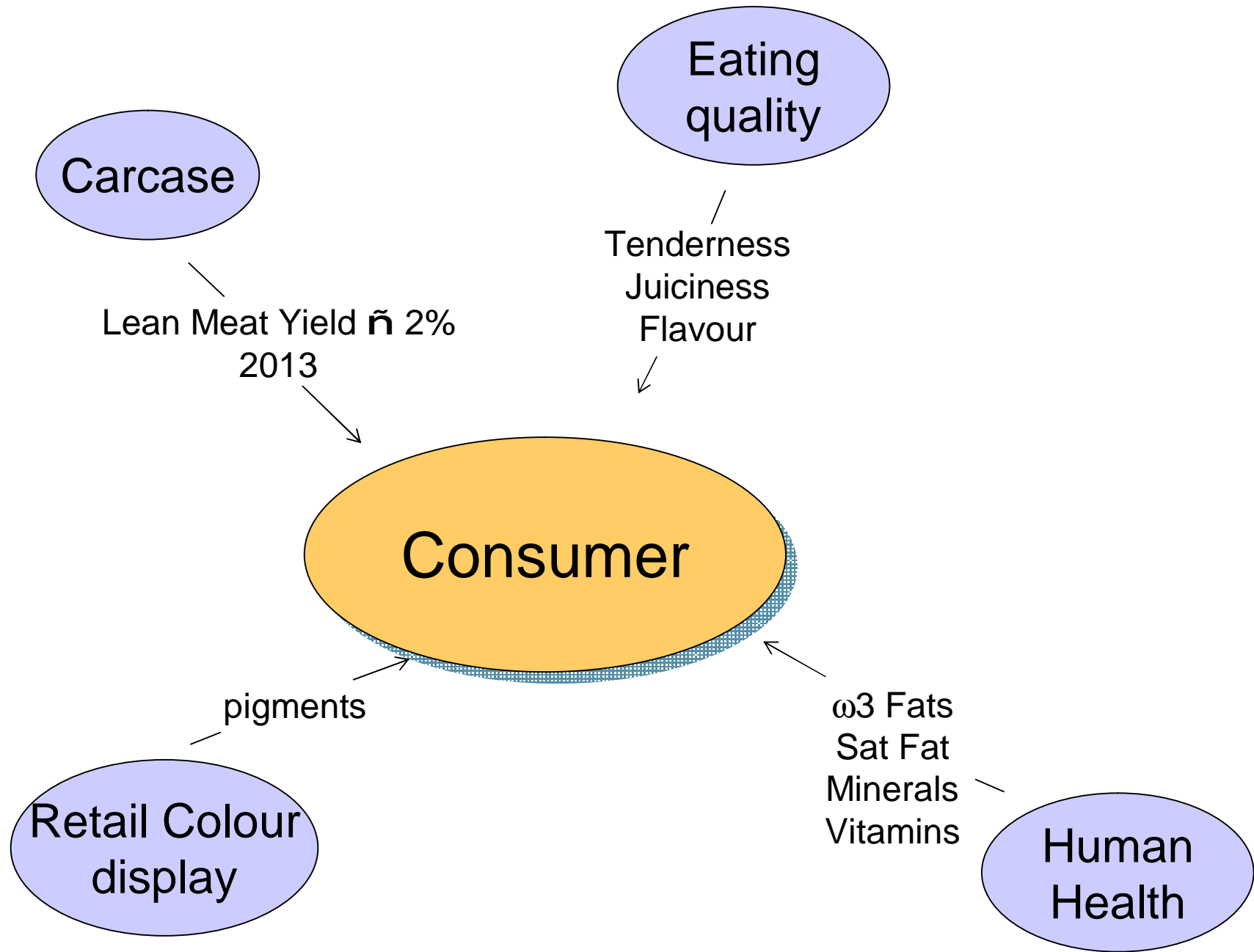


Imagery - Mums



Back to basics – the CONSUMER

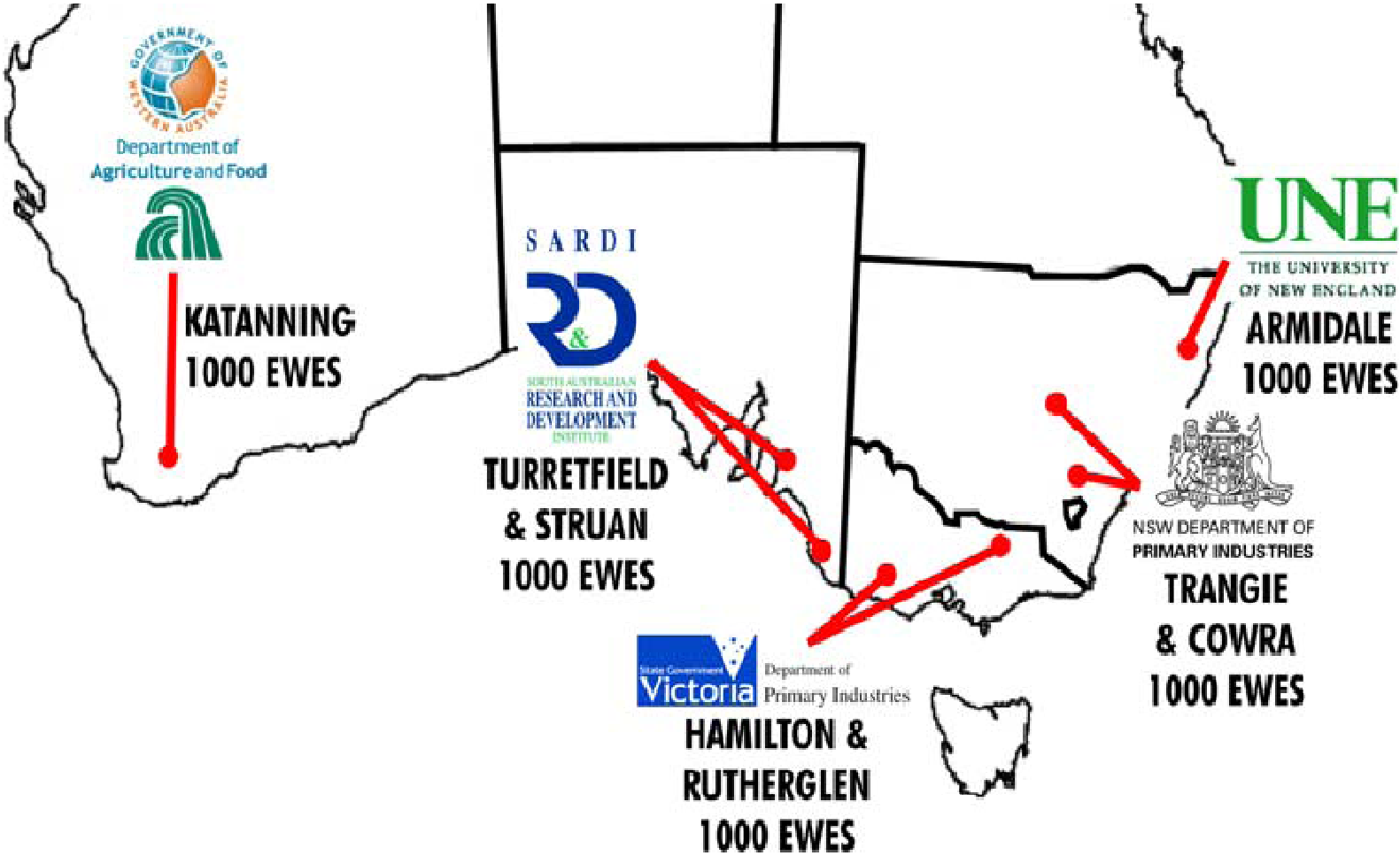




Sheep CRC

Into the Future with
Information Nucleus

100 sires/dams, range of production systems



Measure new & traditional meat phenotypes

- n Carcase & lean meat yield
- n Skin traits
- n Eating quality
- n Human health (Iron, Zinc, omega 3's)

DELIVERY ⇒ Info nucleus ⇒ Sheep Genetics Aust.

Key traits for LMY



SHEEP GENETICS AUSTRALIA



- Growth
- Fat depth
- Eye muscle depth

Carcase weight

Carcase composition

Carcase - preliminary heritabilities

n	HCW	High
n	LMY (%)	Moderate
	ü Eye muscle	Moderate
	ü Fat depth	High
n	Dressing %	Moderate

Growth is king (WWT, PWWT)

WWT, PWWT = "Weight" breeding values

- n High growth rate means
 - Ø more weight for age or
 - Ø earlier turn-off at target weight



- n High growth rate lambs are more feed efficient
 - Ø They eat less kilos of feed per kilo gained
- n More valuable feeder lambs

Growth is king (WWT, PWWT)

WWT, PWWT = "Weight" breeding values

n High growth

Ø more

Ø e

Growth is good-

...but watch birth weight/lambing

ease

n High growth

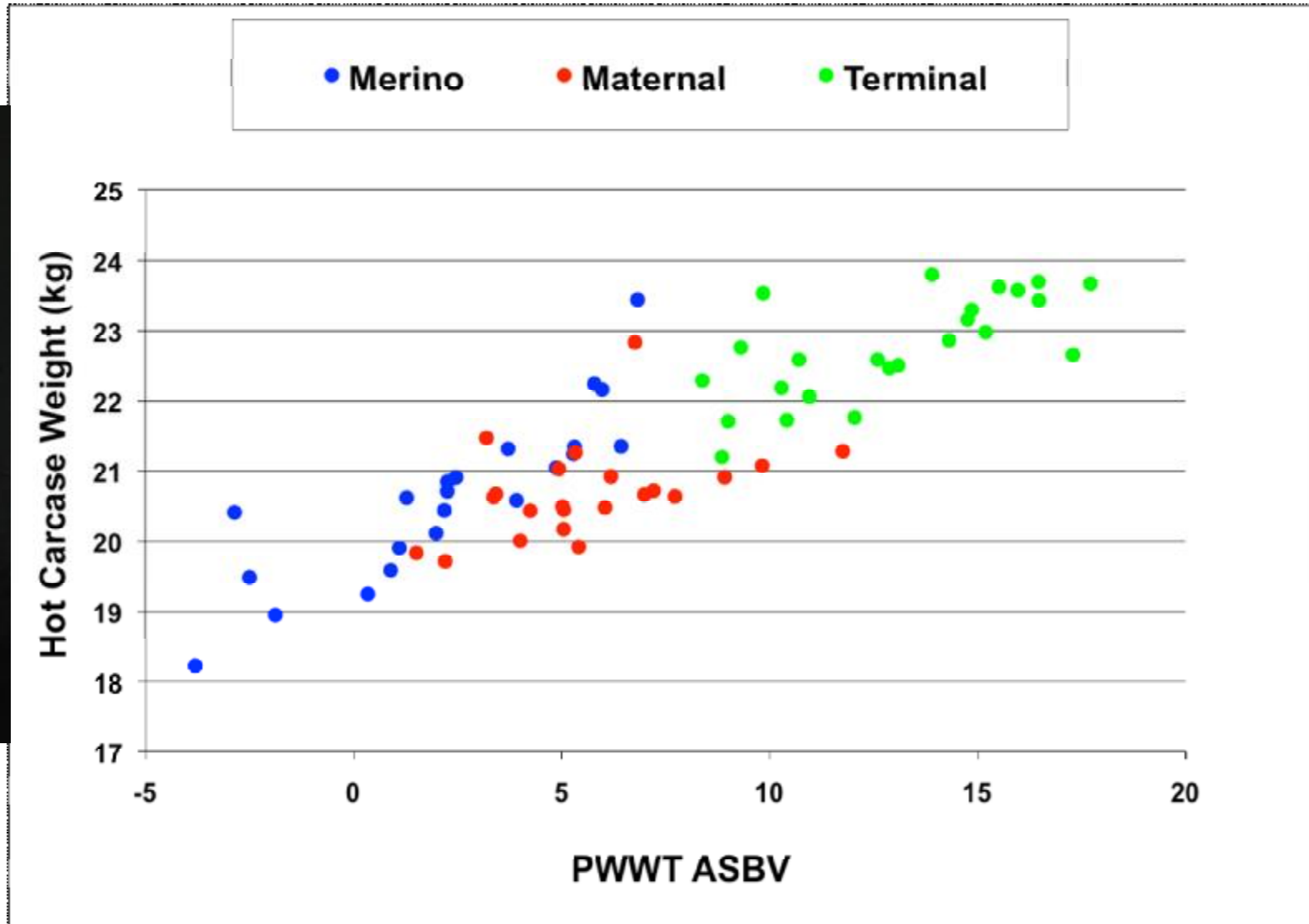
Ø They eat less

efficient

n More valuable feeder lambs

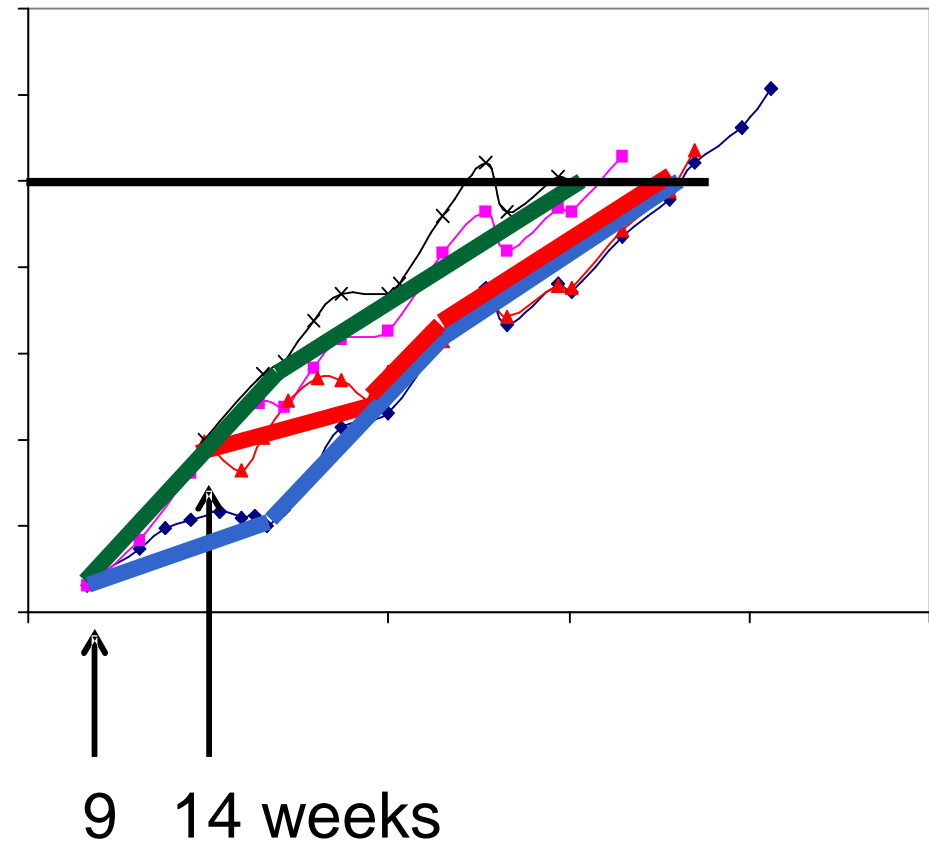
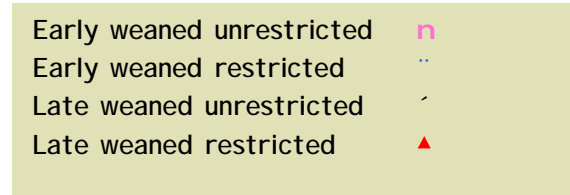


The power of PWWT!



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



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



So weight breeding values
deliver HCW big time

Now lets consider carcass
fatness/muscling

Lean meat yield – Less fat!



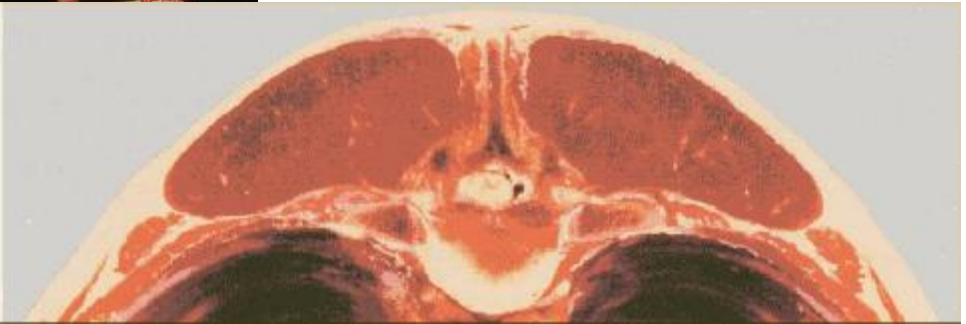
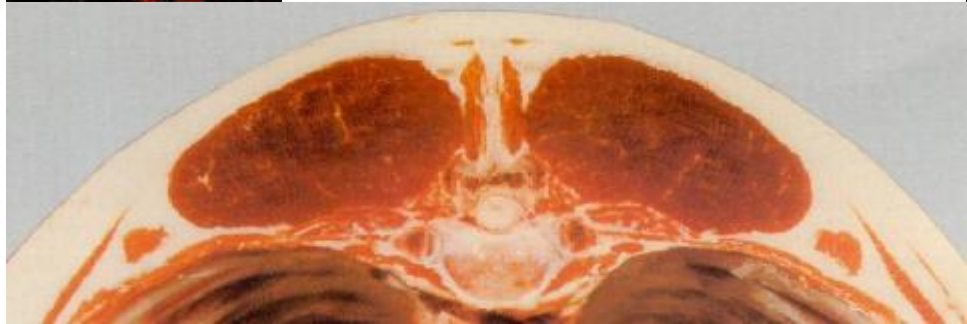
Score 4

Carcase Wt 22 kg
GR 20.0 mm
Fat Score 4



Score 2

Carcase Wt 22 kg
GR 10.0 mm
Fat Score 2



Big difference in carcass value

- n Score 2 (10mm) = extra 2-2.5kg saleable lean meat
- n Score 4 = extra 2kg of fat

- n \$60 difference in retail value !

This fat is wasteful for ALL

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

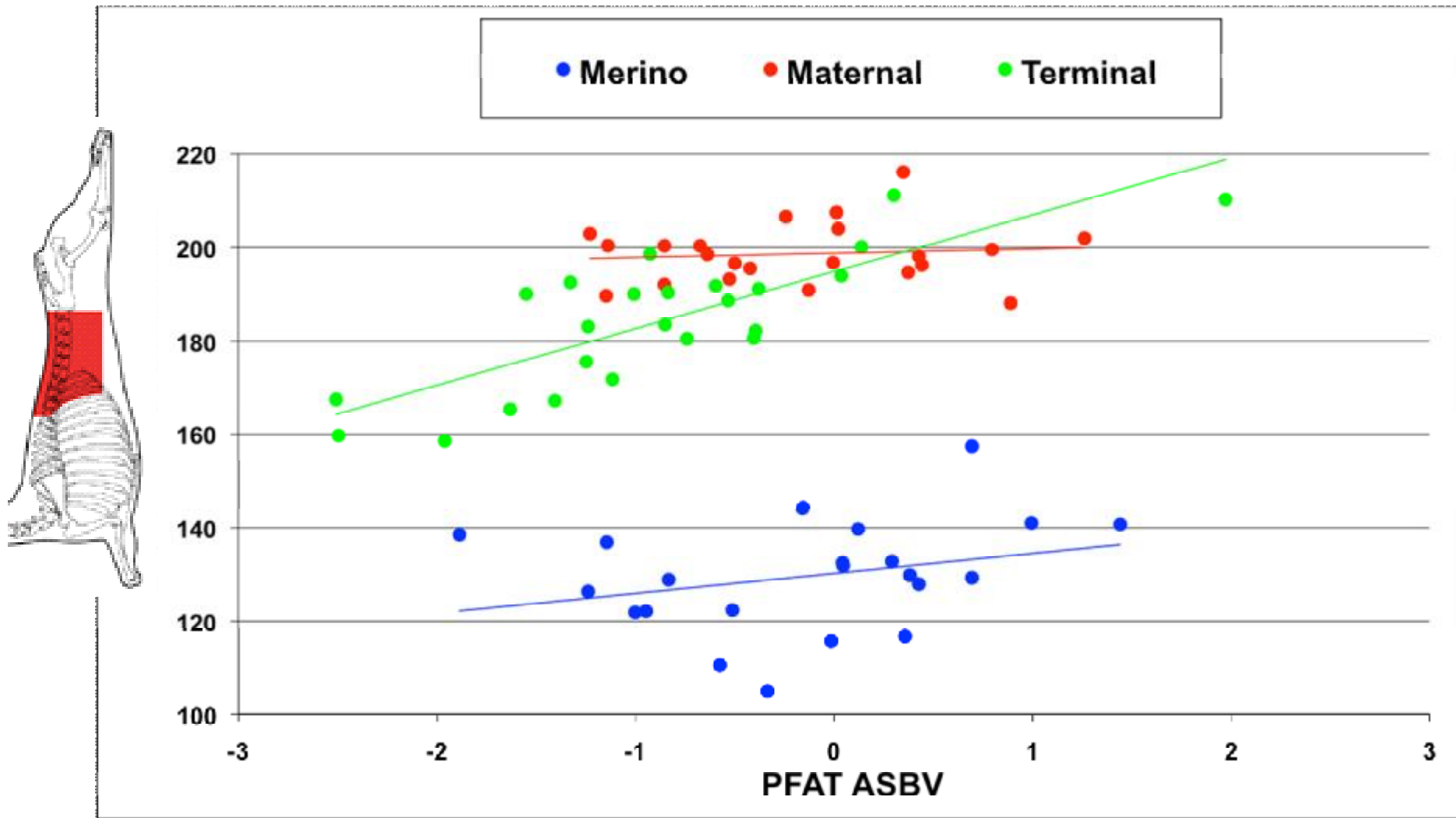
This fat is wasteful for ALL

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

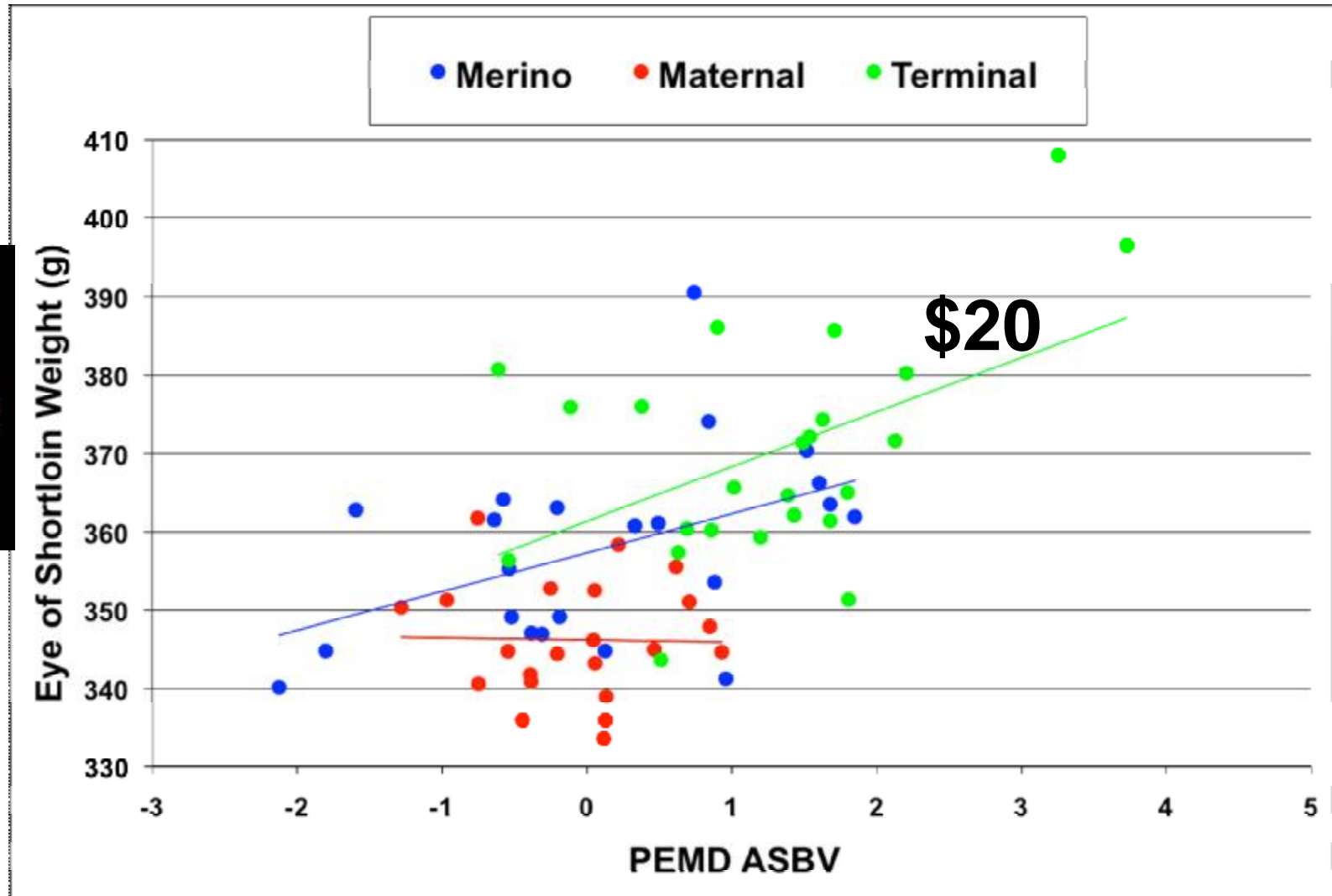
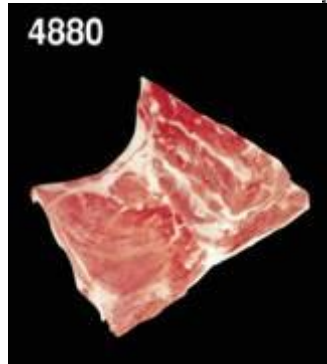
**So which breeding
values deliver
fat/muscle?**

Yield = % meat

PFAT reduces carcass fat (ie Shortloin fat weight)



PEMD increases loin muscle weight



(Note: results shown for 22.5kg HSCW)

Dressing % - also deliver yield (wt)

- n Heritably moderate

- n Genetic correlations

 - ∅ +ve HCW (heavier higher)

 - ∅ +ve EMA (more muscle higher)

Dressing % - also deliver yield (wt)

n Significant effects:

- ∅ Gut fill, diet etc – 5%
- ∅ HCW – 4% (17-27kg)
- ∅ Sex - 0.4% (female higher)
- ∅ Merino lower -1%
- ∅ Muscle genetics – 1%
- ∅ Sire – 1.5% (all breed types show large range)

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

Carcase Traits Summary – Terminal

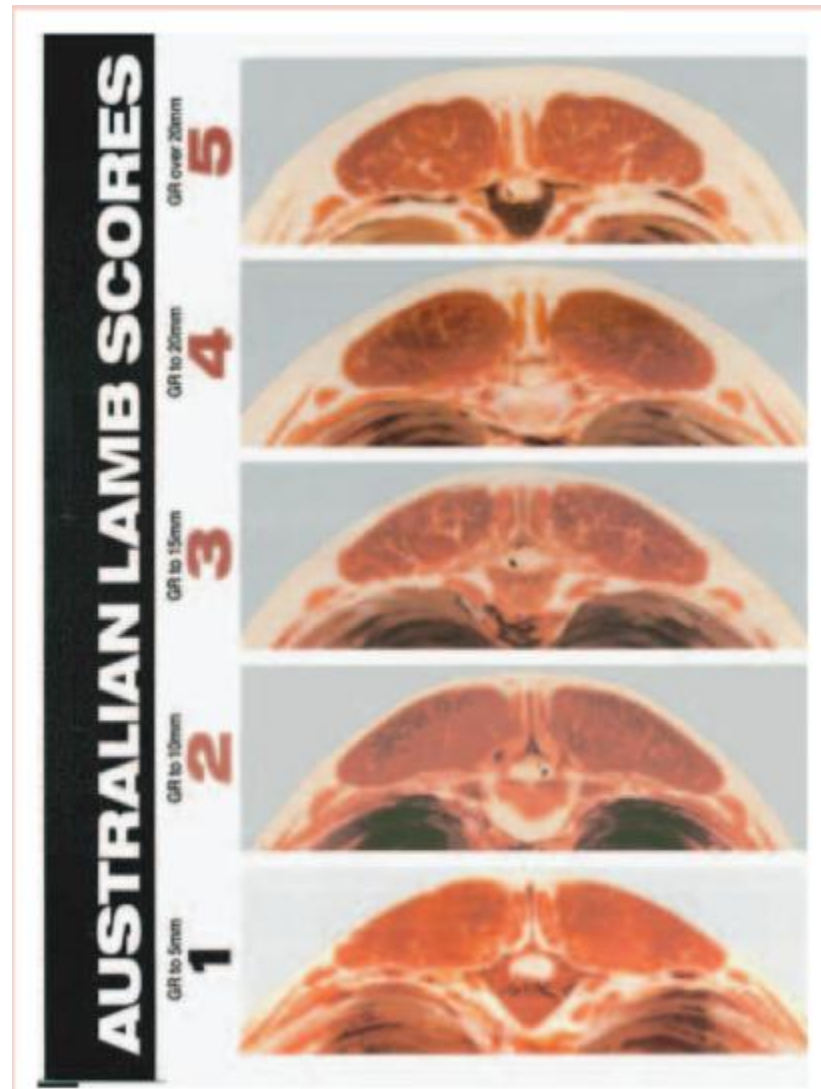
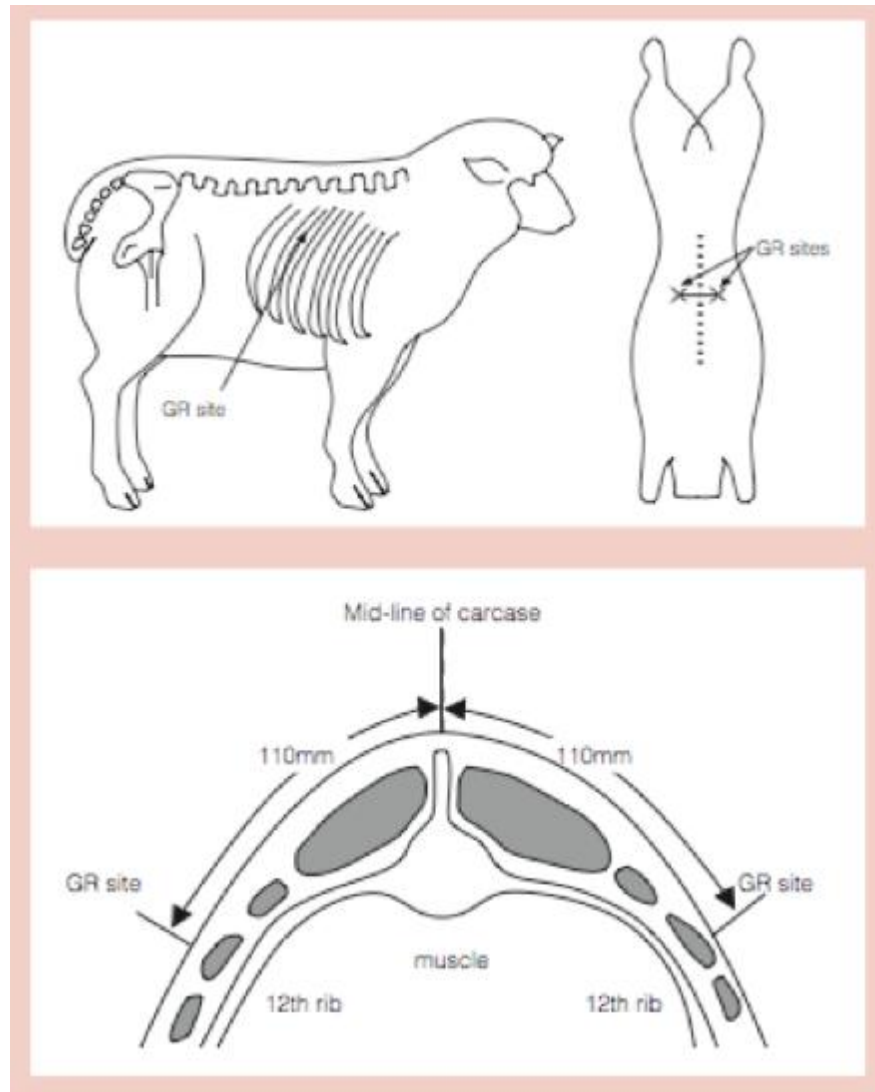


SHEEP GENETICS AUSTRALIA



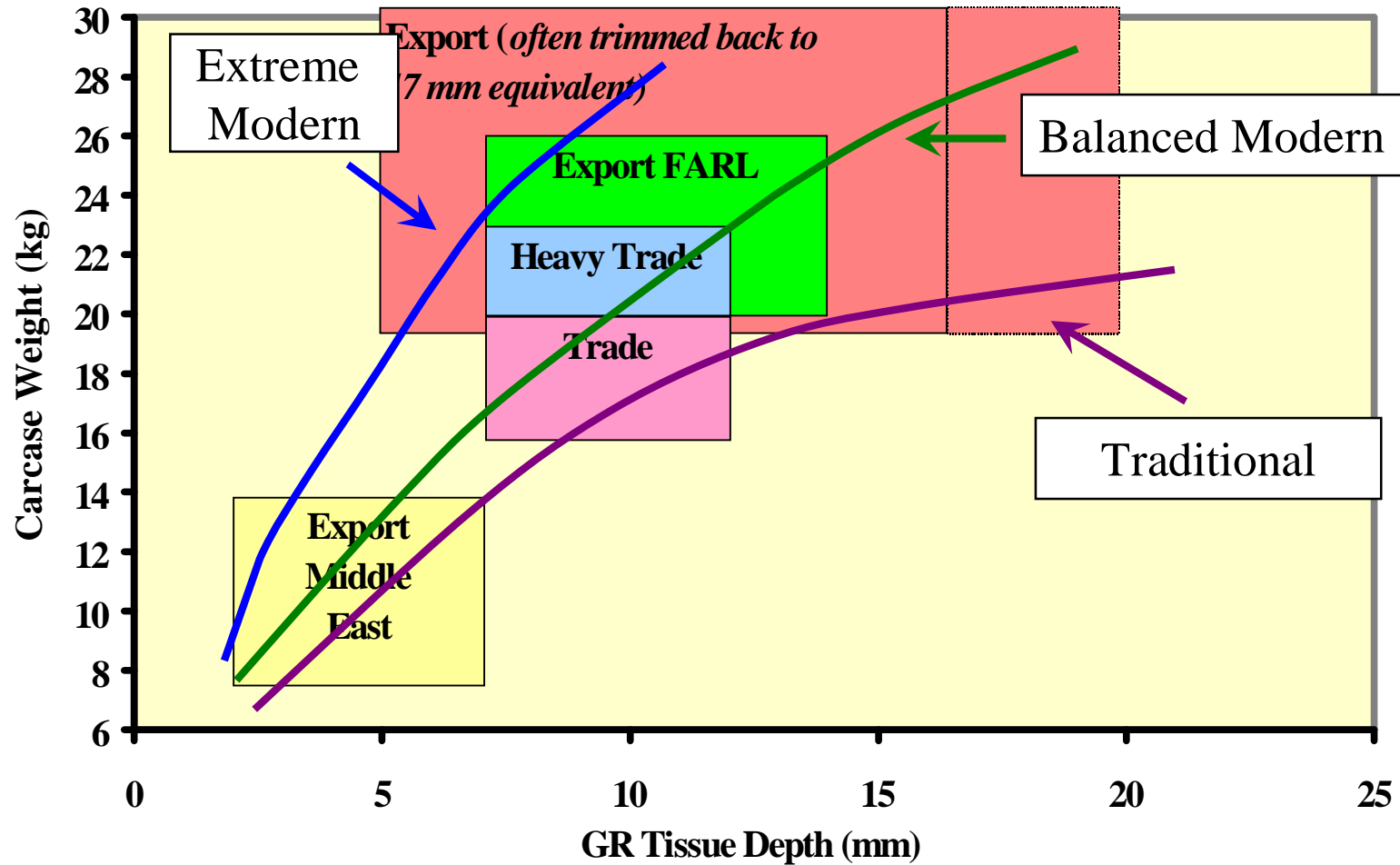
- Growth (WWT, PWWT)
 - For heavier carcase
- Reduced fat depth (PFAT)
 - For leaner carcase
- Eye muscle depth (PEMD)
 - For more muscle where you need it!
- Dressing %
 - Manage = heavier carcase, muscle breeding value

Get on top of fat scoring – its easy !



Prime lamb market specifications

Lamb ~ Preferred Market Specifications



Eating Quality – MSA lamb

n Producers role

- ü Management (old)
- ü Genetics (new)

n Processors role

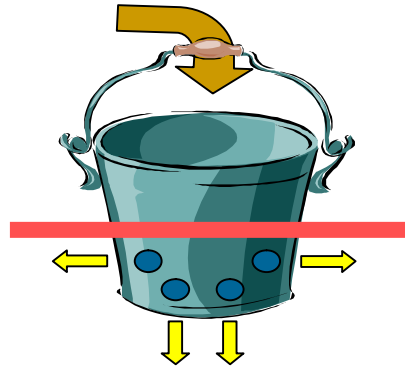
- ü Managing chillers (old)
- ü Genetics (new)

§ Retailer role

Eating quality is a supplychain issue



Producers role 1 – glycogen ?



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

- n Muscle genetics for Merinos/Maternals

Producers role 2 – fatness ?

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



Producers role 3 – intramuscular fat ?

NEW

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



Producers role 3 – intramuscular fat ?



SHEEP GENETICS AUSTRALIA



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

Human health

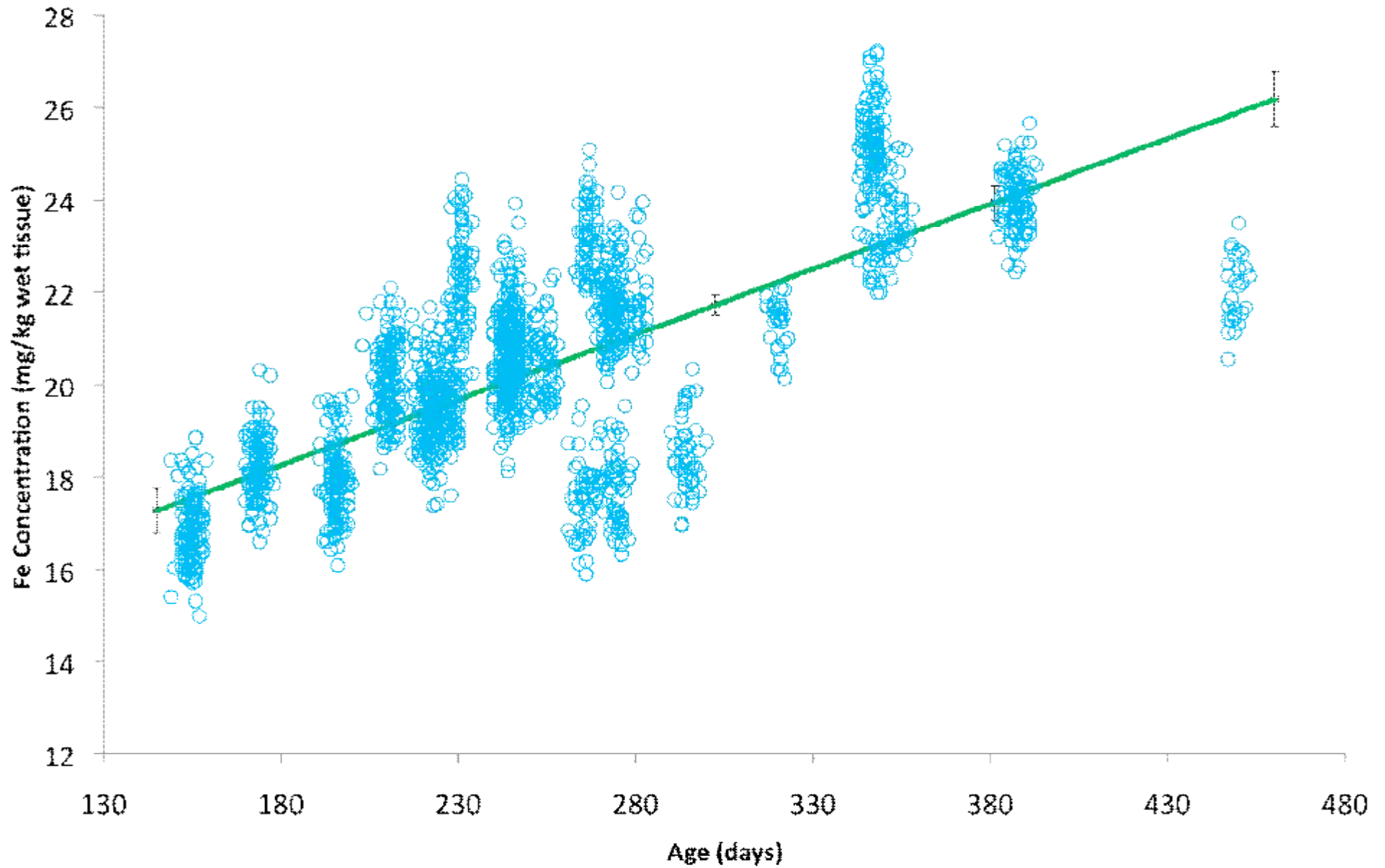
- n Lamb right on a good source of Fe claim – best not to go lower (genetics)

Descriptive stats (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	✓

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

Effect of age on Iron levels



Human health

- n Omega 3 – lamb is on average a dead set source of omega 3 (pork and chicken are not)
- n Plus they are heritable !

Conclusions - LMY

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

But now can balance this with

n Eating quality

n Human health

Conclusions – Human health

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

Conclusions – How powerful is all this

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

Conclusions – Supplychain utilisation

- n Is this all just too much
- n Before its time
- n Clearly we think not – the lamb Industries maturity is just about right for it
- n 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

