



Effect of age on sensory scores of Australian Merino sheep meat

Dr Liselotte Pannier

(session 25, p230)



Outline

- Importance of eating quality - the consumer matters
- Factors impacting on eating quality
- What do consumers think of Lamb and Yearling Meat?

Importance of Eating quality



5 pillars of consumer demand

**Integrity &
Traceability**

Eating Quality

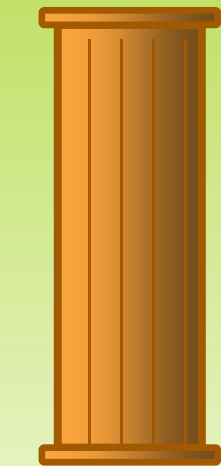
**Nutritional
value**

Ethical systems

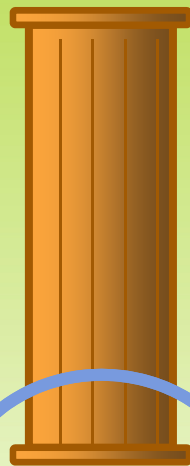
**Value &
efficiency**

Importance of Eating quality

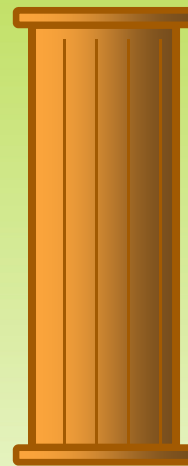
5 pillars of consumer demand



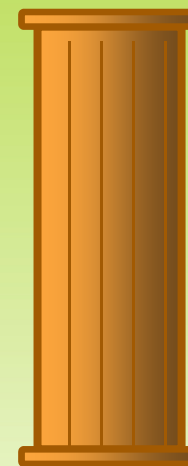
**Integrity &
Traceability**



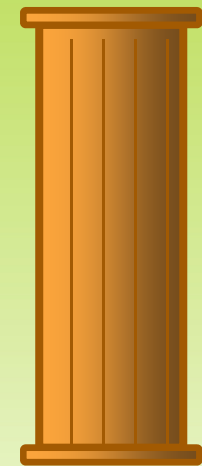
Eating Quality



**Nutritional
value**



Ethical systems



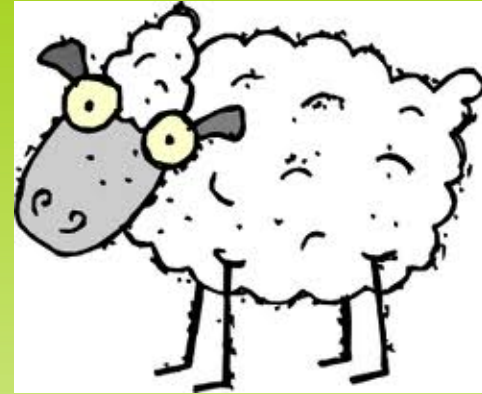
**Value &
efficiency**

Sheep meat



Lamb

- No permanent erupted teeth
- Typically max 12 months of age



Yearling

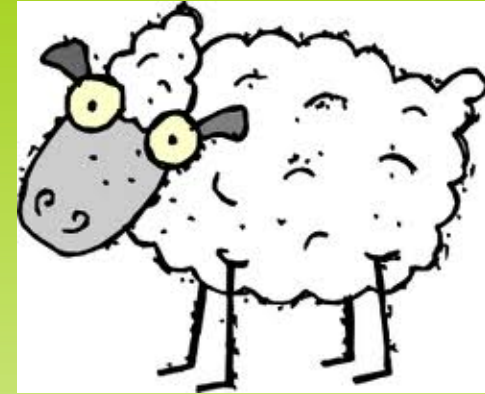
- 1- max 2 permanent erupted teeth
- Typically 12-20 months of age (or older)

Sheep meat



Lamb

- No permanent erupted teeth
- Typically max 12 months of age



Yearling

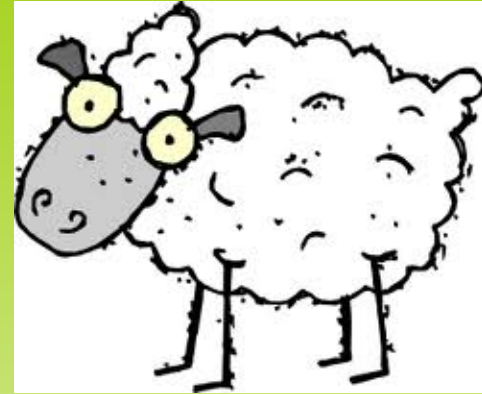
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Do yearlings eat as well as lambs?

What do we know...

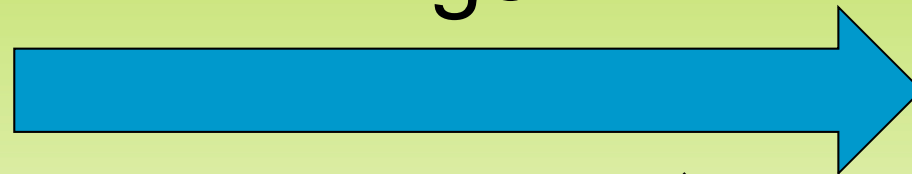


Lamb



Yearling

Age



Shear Force



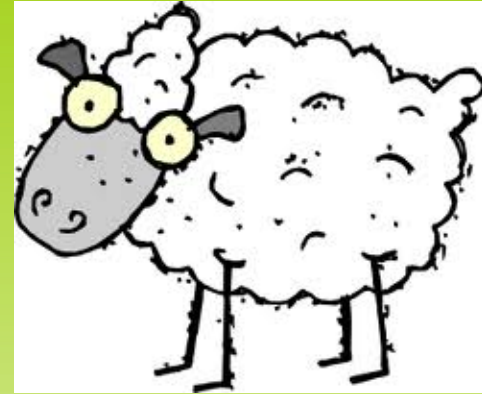
(Lower tenderness)

Hypothesis



Lamb

EQ



Yearling

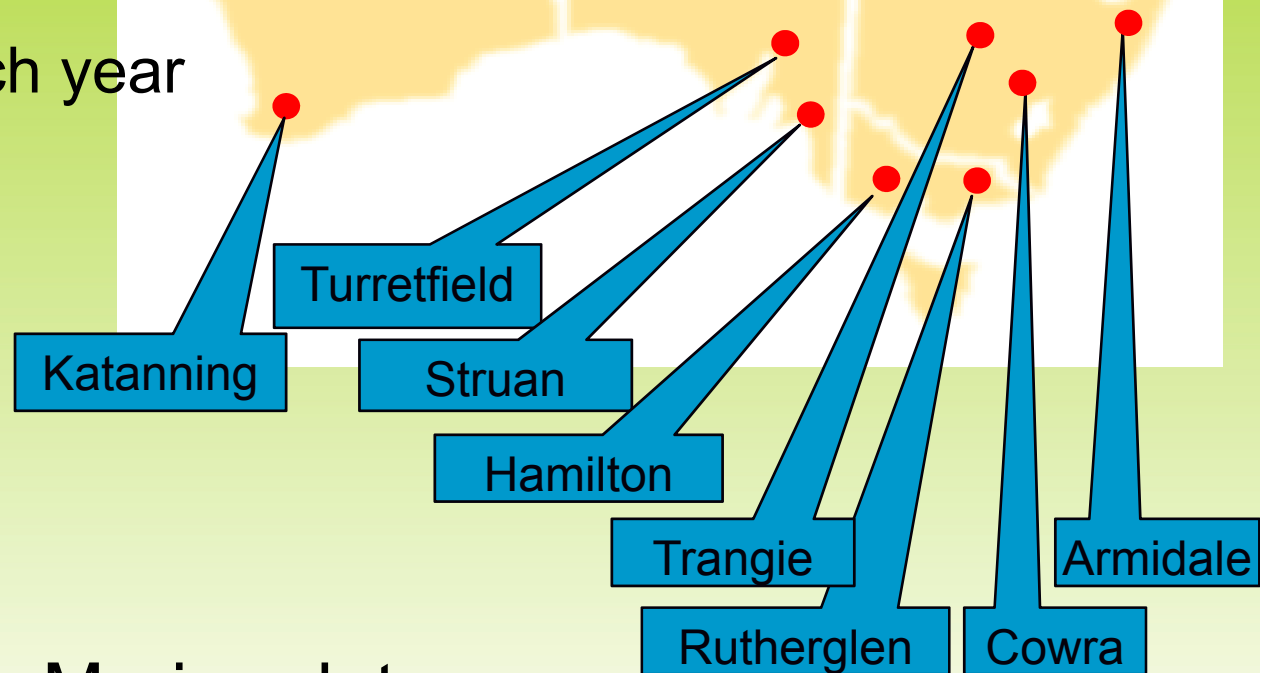


Age
Shear Force

Information Nucleus Flock (Sheep CRC)

Design – Sheep CRC INF

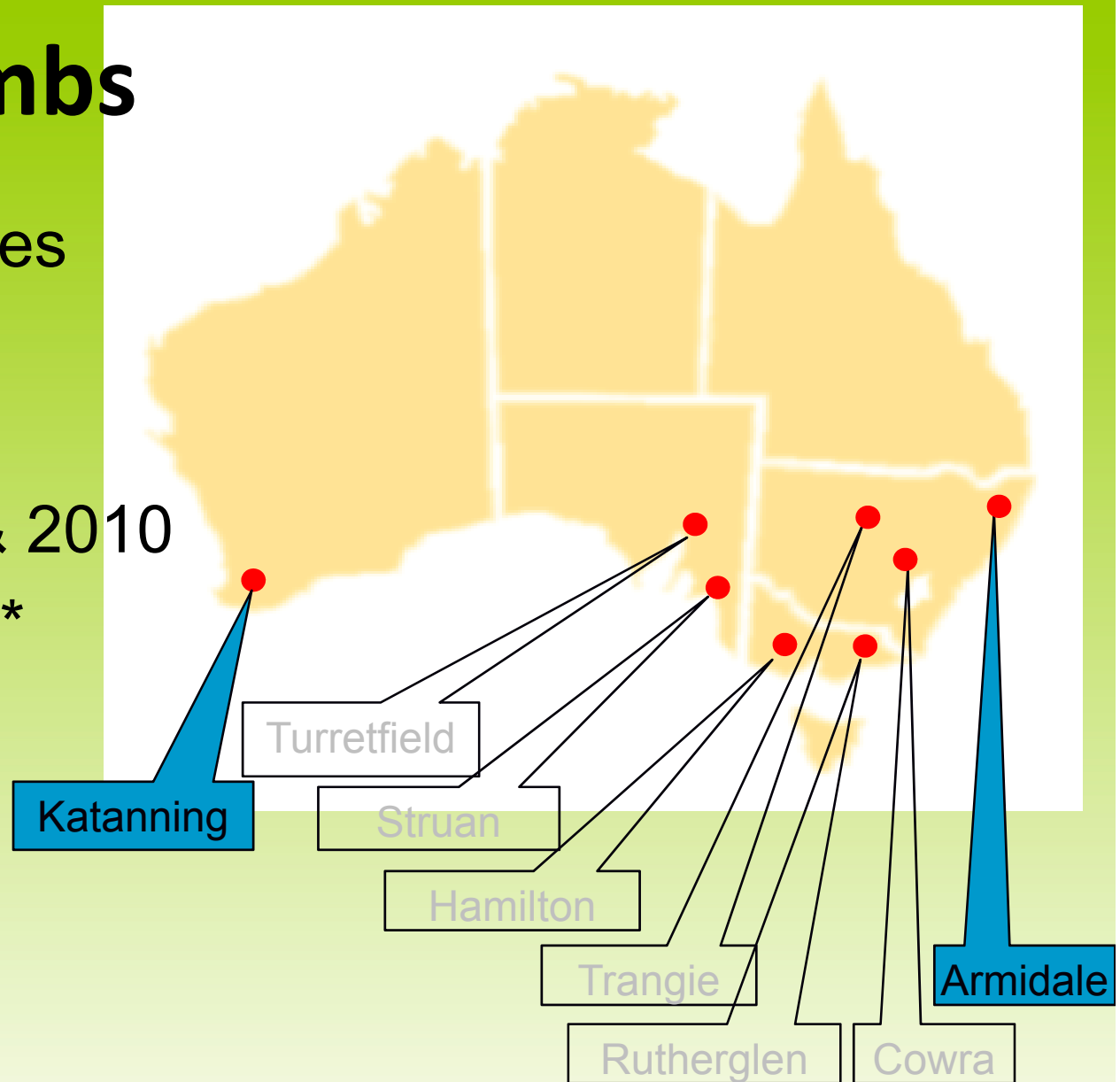
- 8 Production sites
- \pm 100 sires each year
- Merino and maternal ewes
- 2000 progeny each year



⇒ Subset of pure Merino data

Design - Lambs

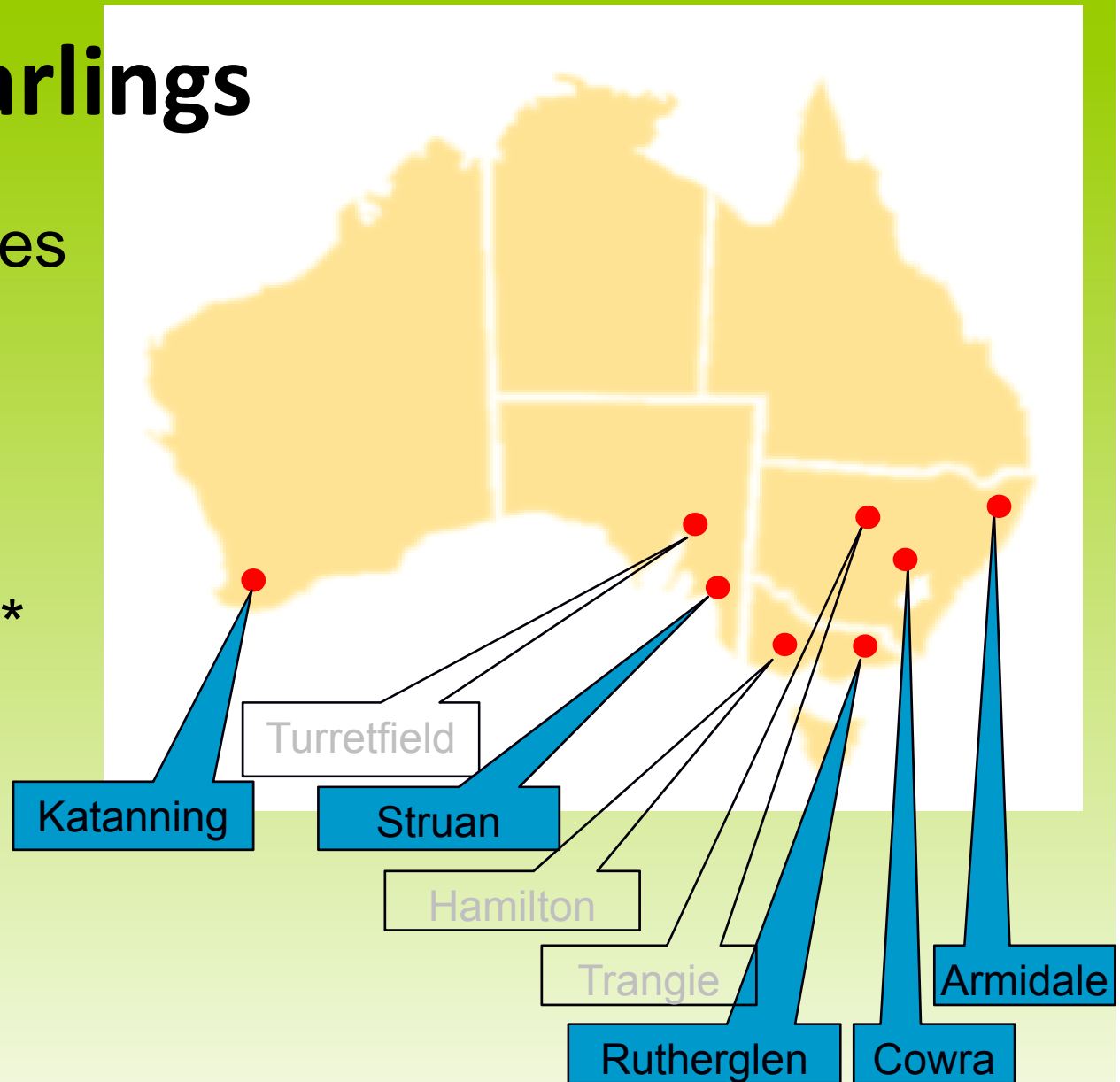
- 2 production sites
- N = 189
- Merino
- Killed in 2009 & 2010
- Loin & Topside *



* *m. longissimus thoracis et lumborum*; *m. semimembranosis*

Design - Yearlings

- 5 production sites
- N = 206
- Merino
- Killed in 2010
- Loin & Topside *



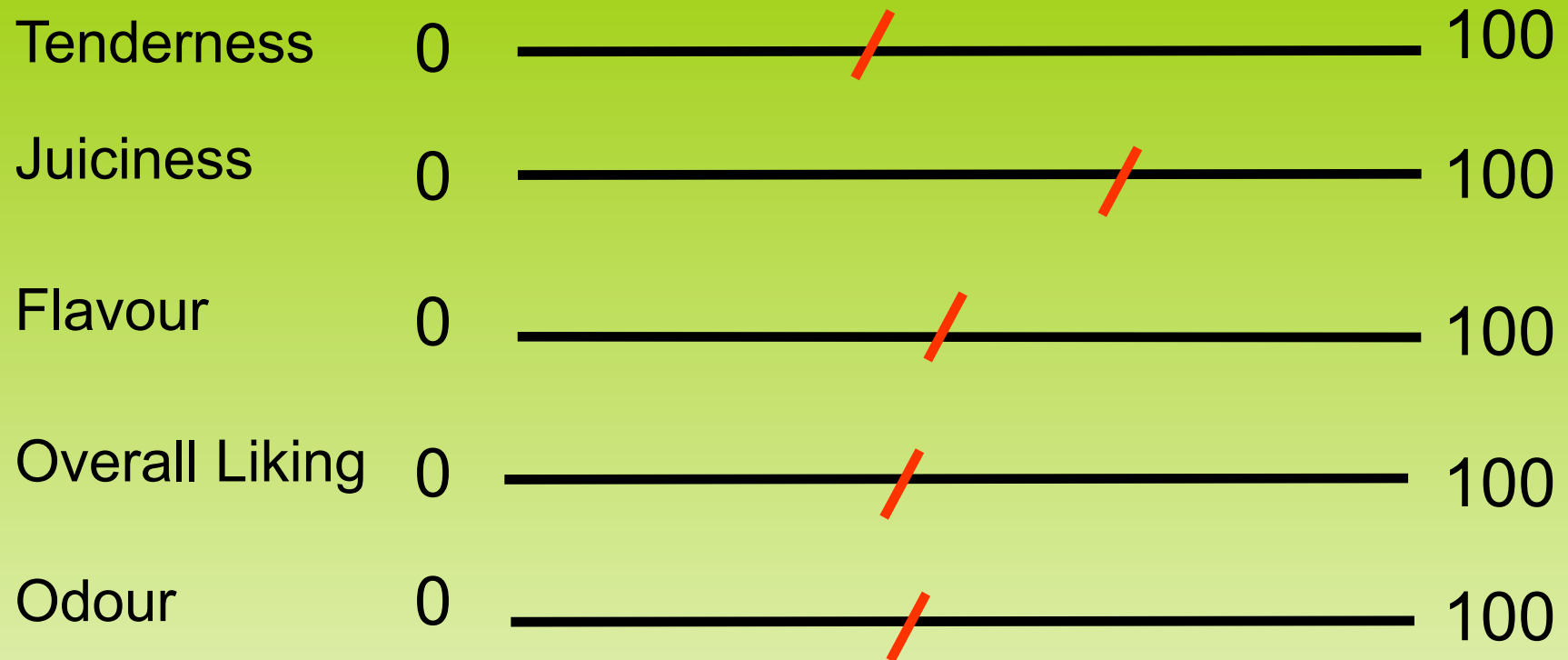
* *m. longissimus thoracis et lumborum*; *m. semimembranosis*

Consumer testing (0 – 100)

- Tenderness
- Juiciness
- Liking of flavour
- Liking of odour
- Overall liking



Consumer testing (0 – 100)

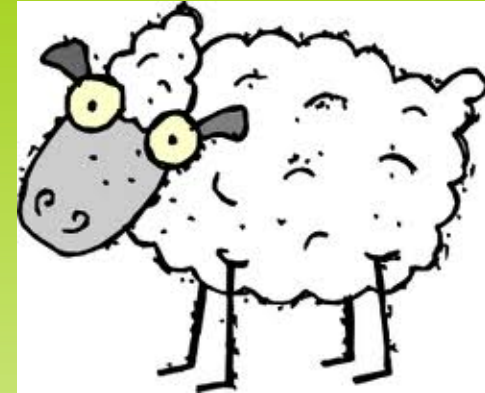


Objective measures

Objective measures...



Lamb



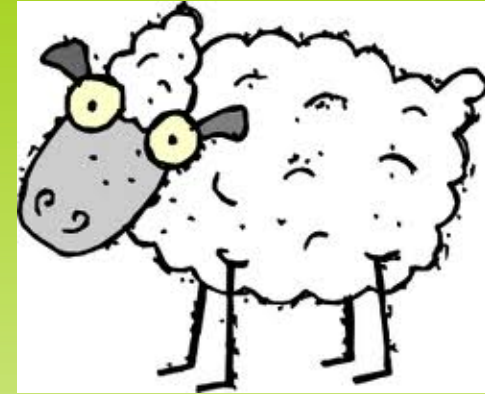
Yearling

	Trait	
355 ± 44.0	Age (days)	685 ± 24.2
24.9 ± 8.2	Shear force (N)	31.8 ± 8.4
5.01 ± 1.0	Intramuscular fat (%)	4.96 ± 1.0
46.3 ± 2.8	Lean meat yield (%)	46.7 ± 3.6
21.3 ± 2.2	Carcass weight (kg)	25.5 ± 4.8

Objective measures...



Lamb

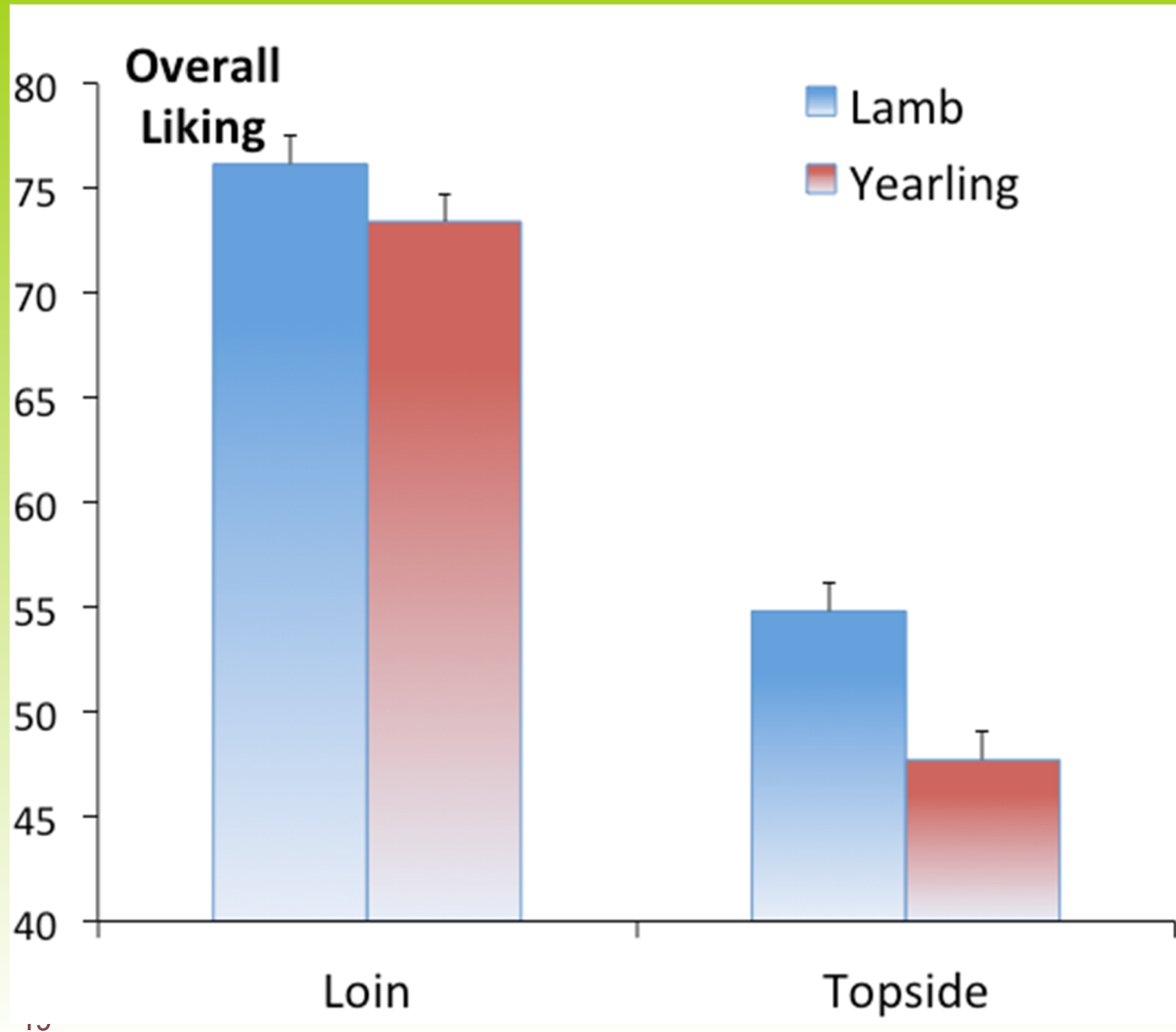


Yearling

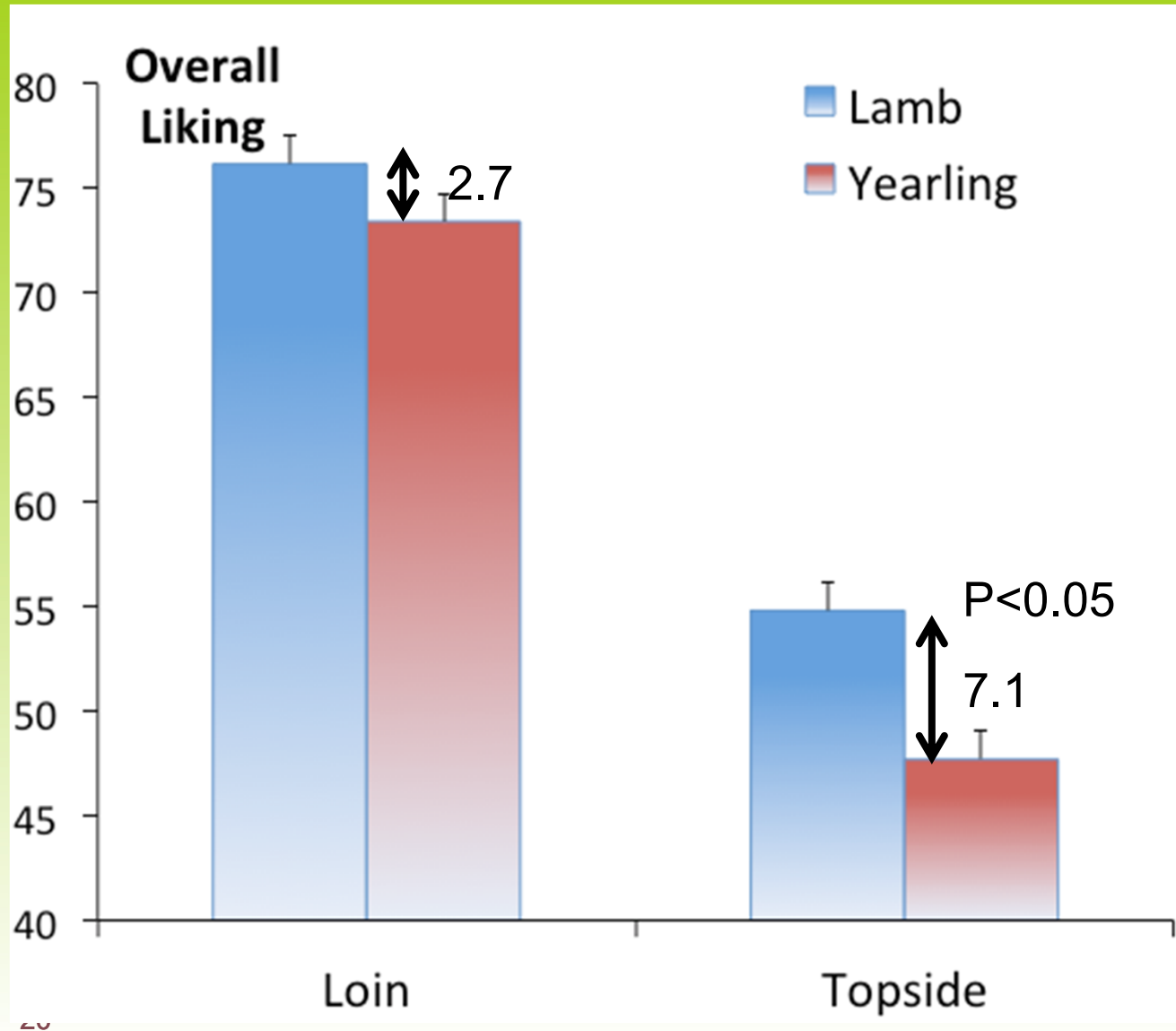
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What do consumers think about the EQ

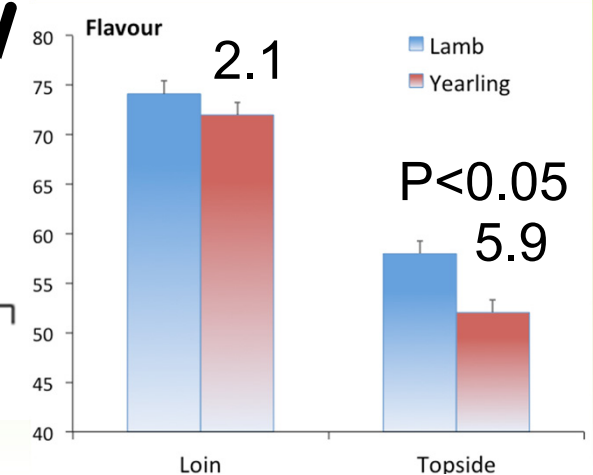
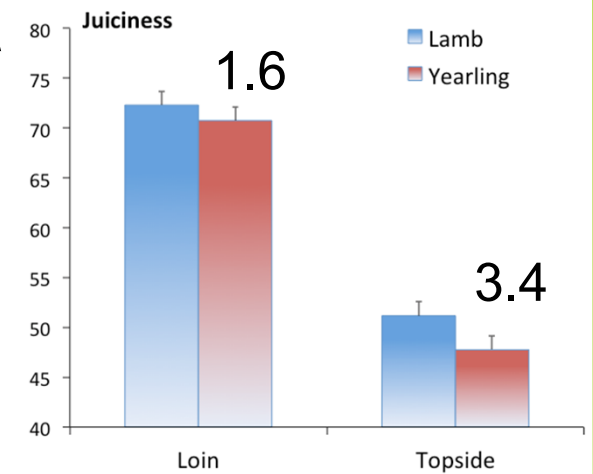
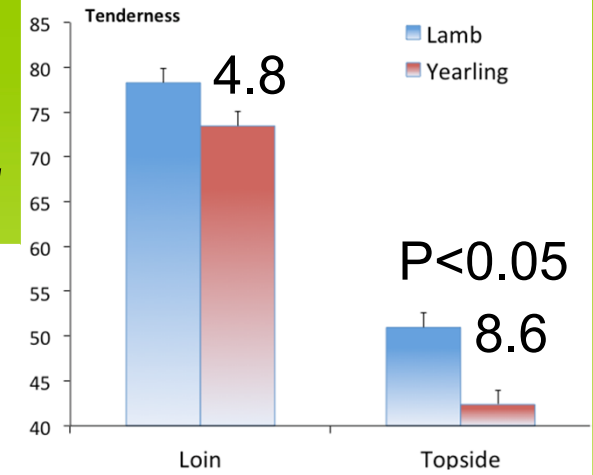
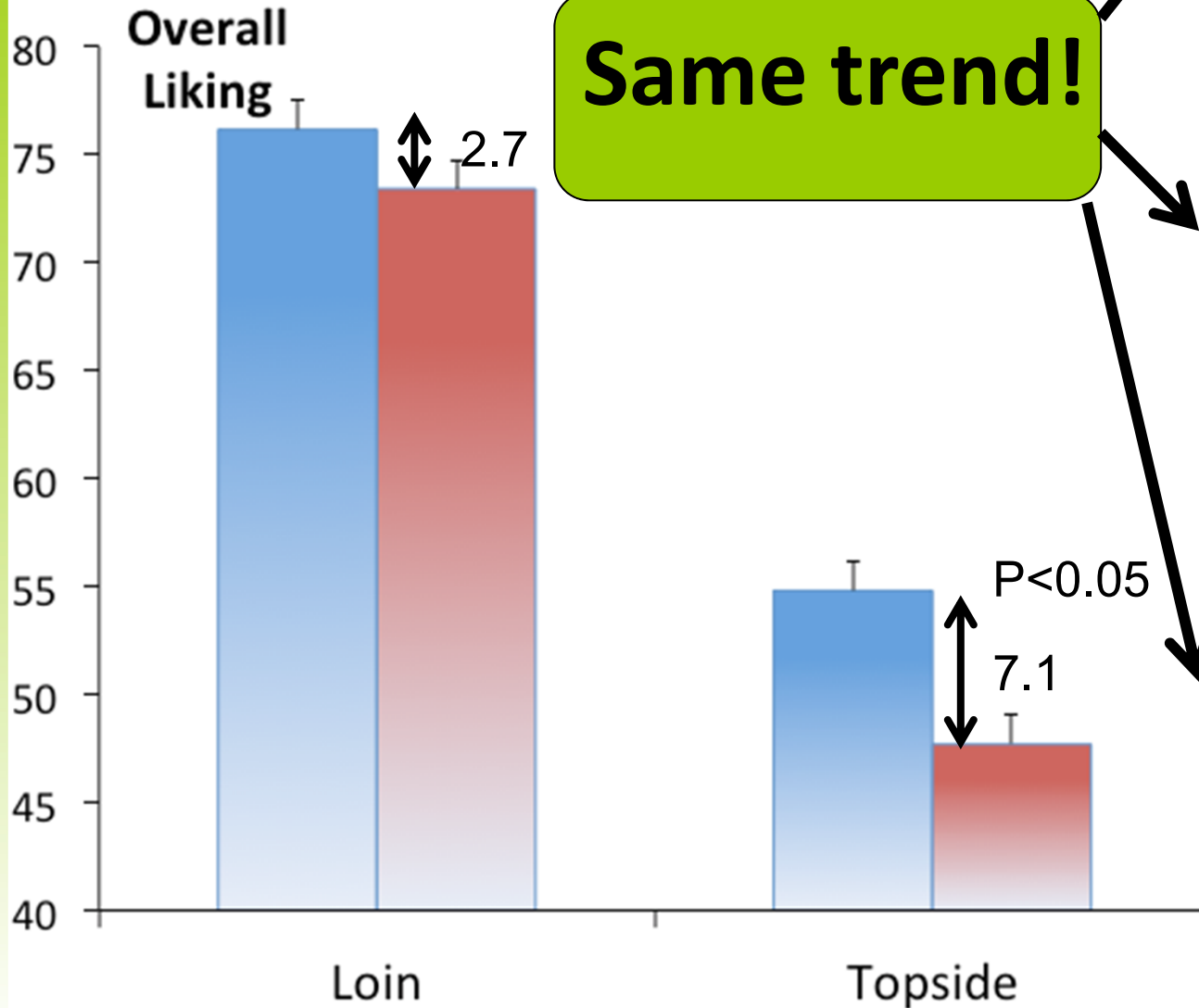
Eating quality...



Eating quality...

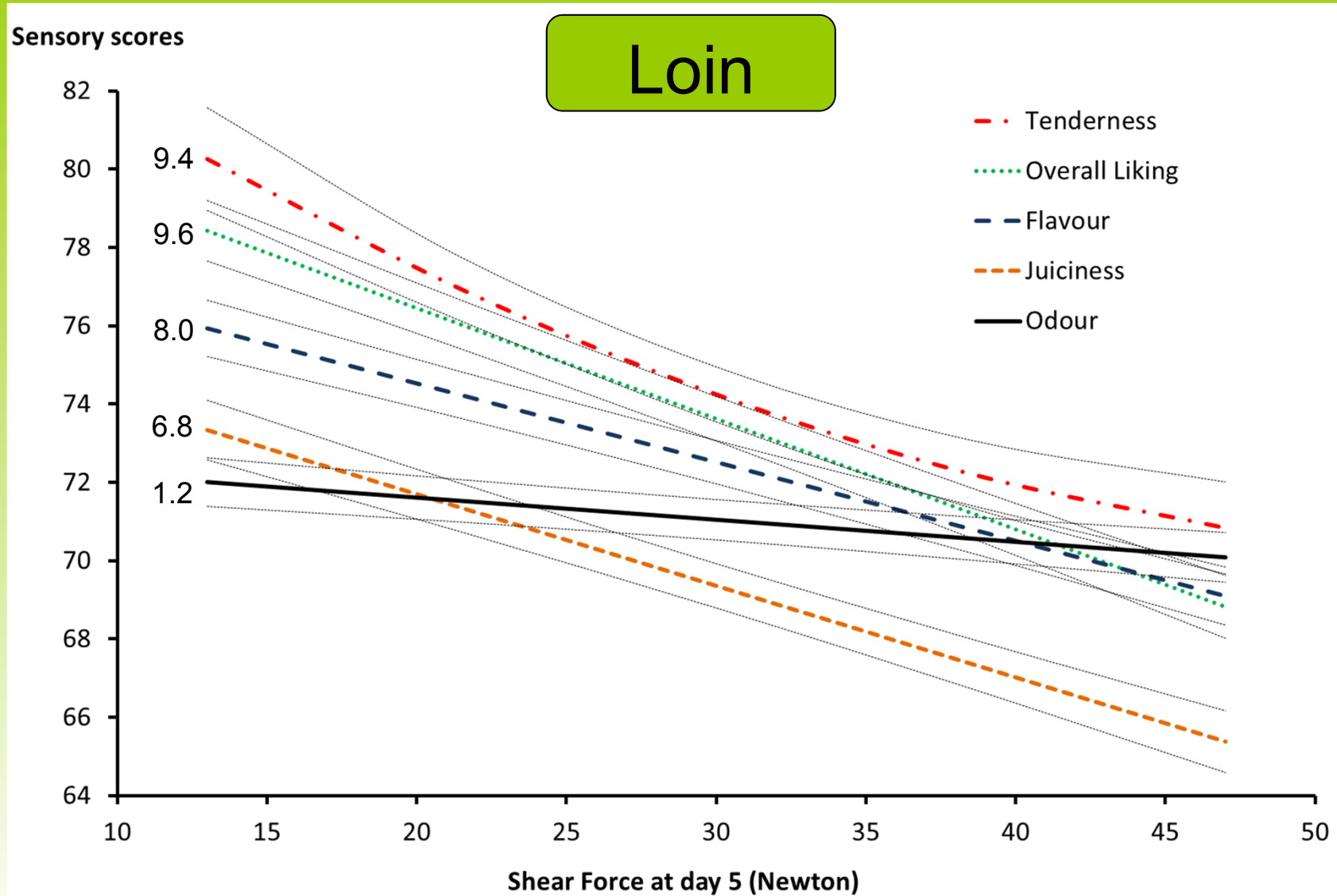


Eating quality...

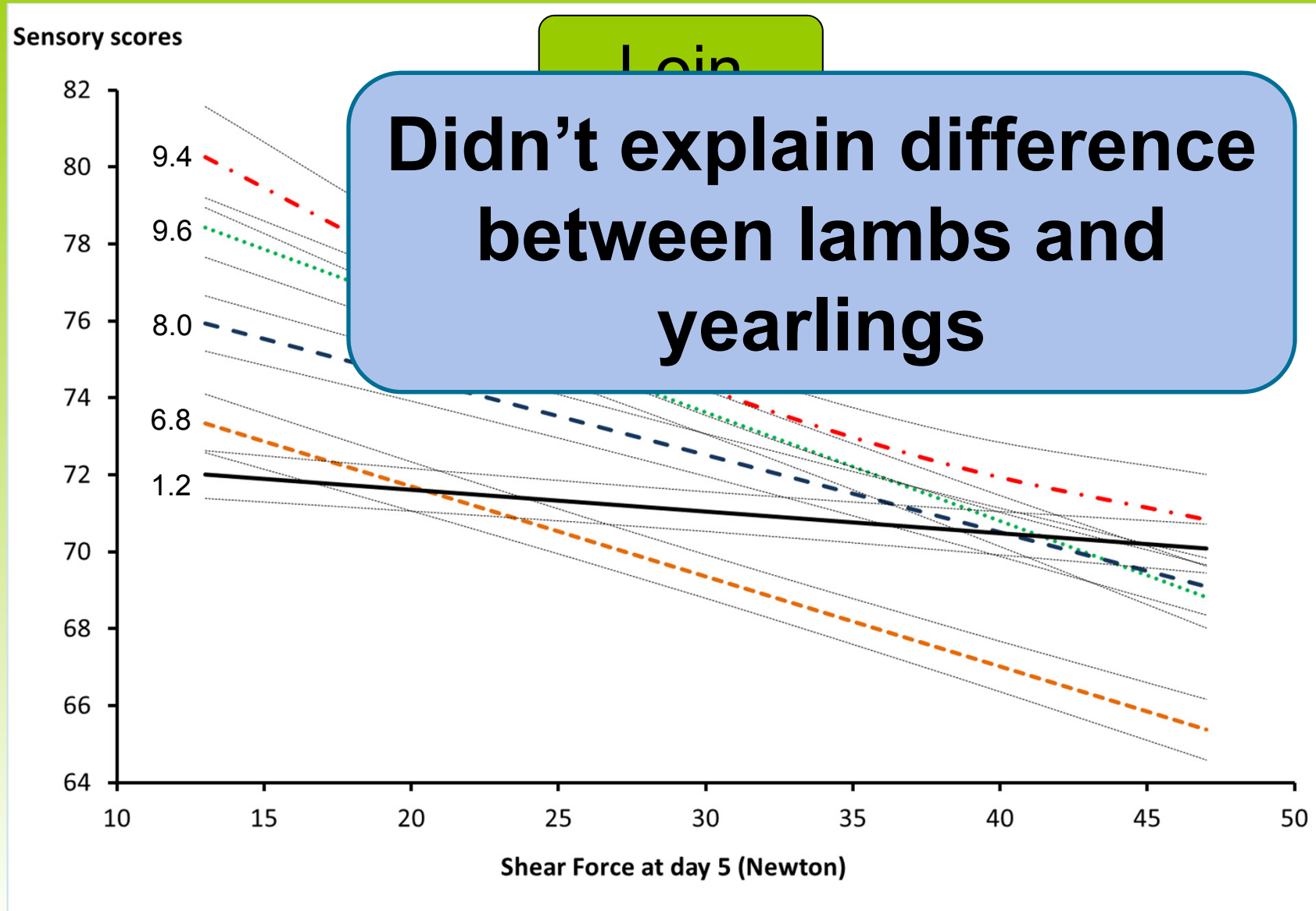


Association with Shear force

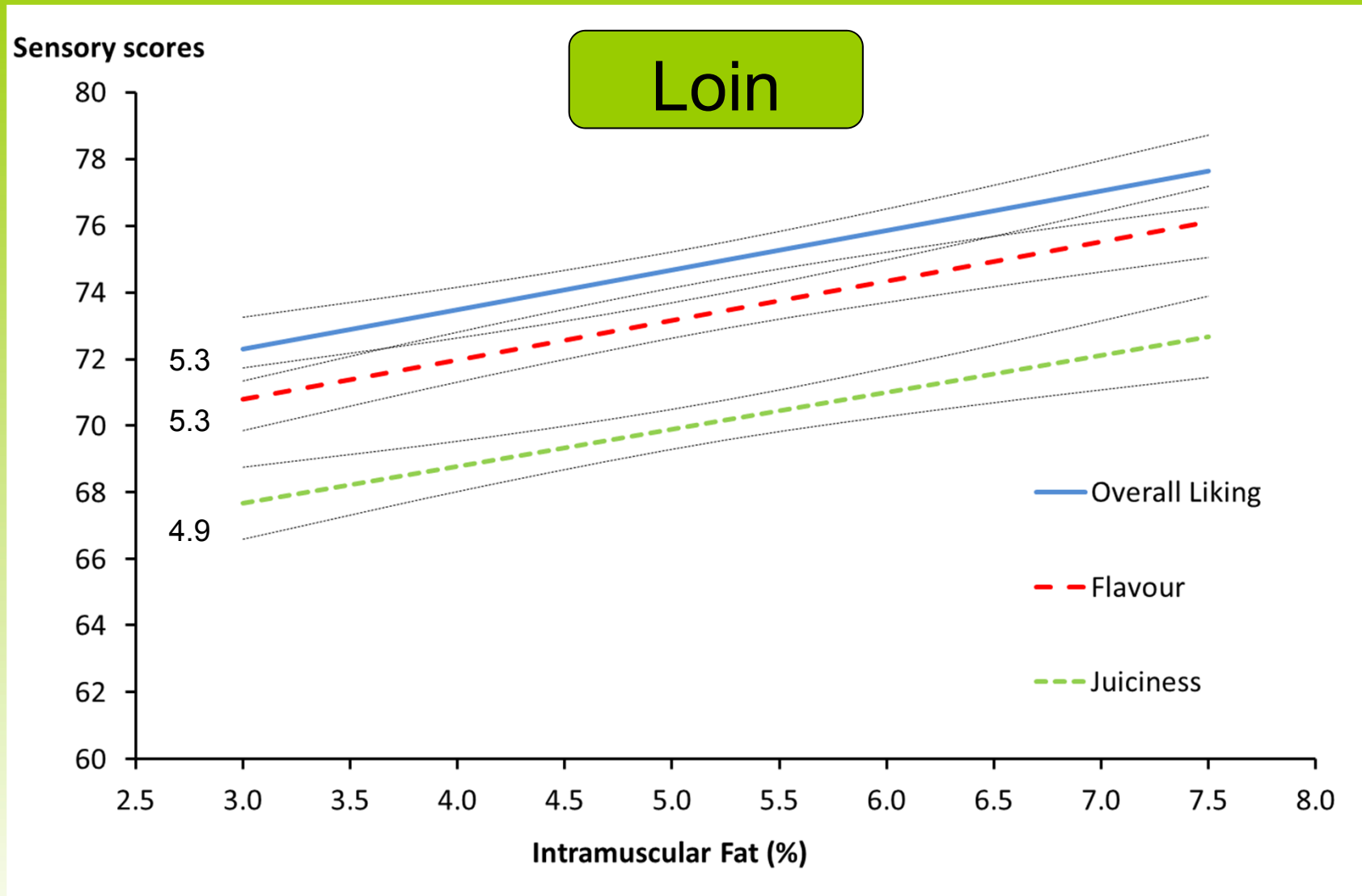
Shear force decreases EQ score



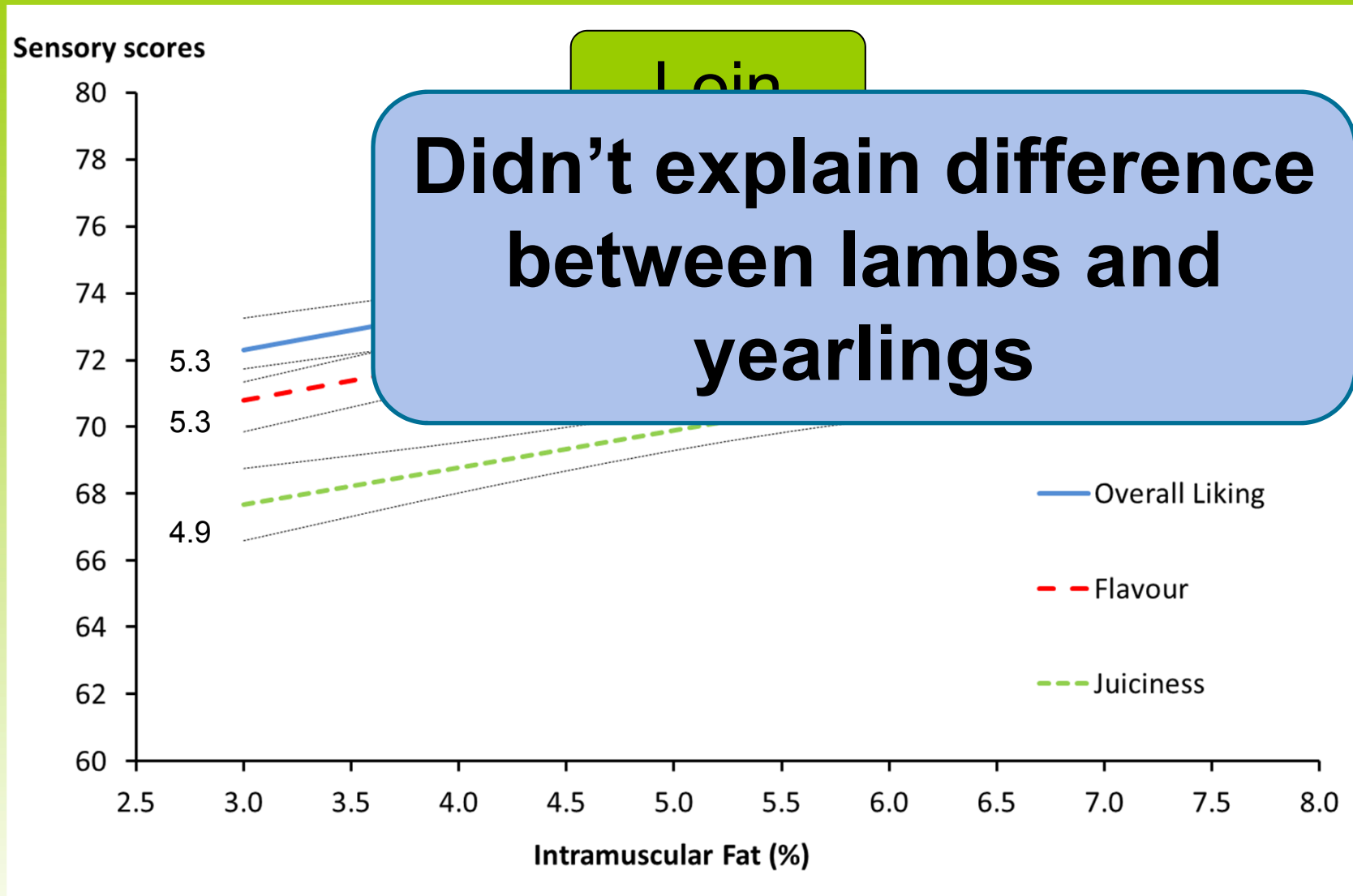
Shear force decreases EQ score



IMF% increases EQ score



IMF% increases EQ score

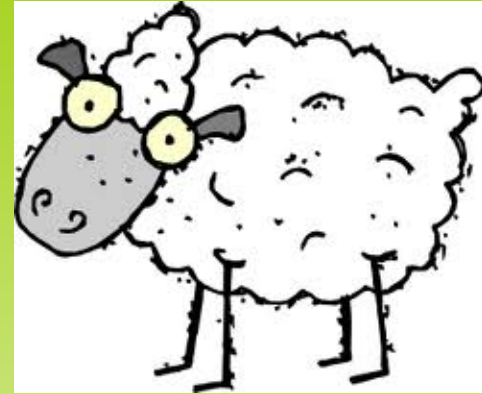


Hypothesis



Lamb

EQ



Yearling



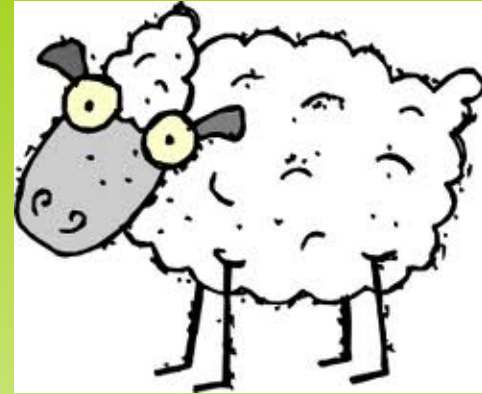
Age
Shear Force

Hypothesis



Lamb

EQ ✓



Yearling

Age ✓

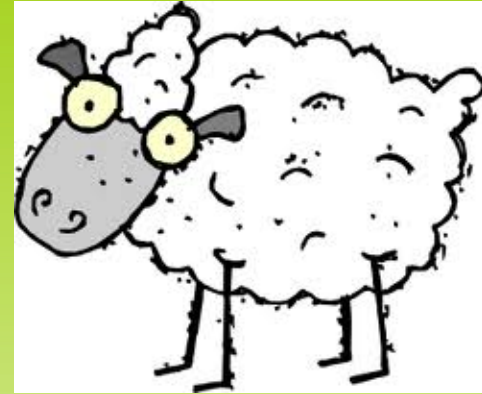
Shear Force

Hypothesis



Lamb

EQ



Yearling

Age



Shear Force

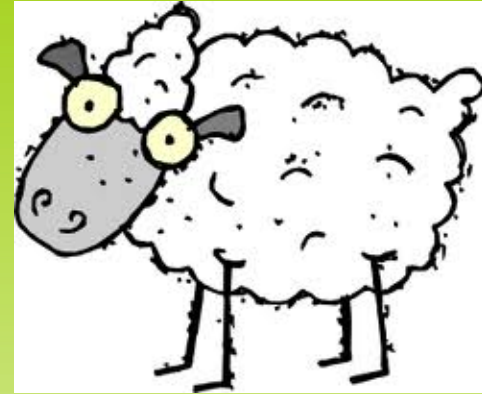


Hypothesis



Lamb

EQ



Yearling

Age



Shear Force



IMF%



Summary

Lamb & Yearling loin were not significantly different !

- Good potential for **hogget loin** product
- However EQ was **significantly different** for the **topside**

Summary

Shear force and IMF% don't explain difference between Lambs and Yearlings !

- However the **impact of IMF% and Shear Force on EQ is still strong**
- Shear force and IMF% are **good predictive indicators** of EQ
- Agrees with previous published data (Pannier et al., 2014)
- **The consumer can tell the difference in EQ**

Acknowledgments

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Collaborators



Summary

Manage yield and eating quality

- Keep continue to **monitor EQ** to asses direction of breeding programs
- **Develop a predicted EQ score** based on relationship with IMF, SF5
 - ⇒ **Up to 11 scores**
 - ⇒ **Good predictor** of sensory scores

Hogget product

- Market in Australia
- Hogget (1- max 2 permanent erupted teeth)
Typically 10-18 months of age (or older)
- Lamb (no permanent erupted teeth)
Typically max 14 months of age

Importance of Eating quality

- Evaluation of the 'end product'
- Consumers don't lie
- It's a strong key driver of demand of sheep meat
- Economically - purchase and willingness to pay



What do we know....



Intramuscular fat % (IMF%)

Sensory scores

n = 1471

