Positioning sheep meats for the consumer
Richard Apps - Sheep R&D Project Manager, MLA
Why does Eating Quality matter?

- Carcases have changed – ↑ Wt, ↑ EMD, ↓ fat
- LMY has increased - ↓ IMF and ↑ SF5
- Consumers demand more from lamb
- Eating Quality is paramount for retailers
Lamb considered expensive

Based on Total Main Sample
Rolling 8 weekly data

60% Lamb
50% Fish
37% Beef
21% Pork
12% Chicken
Quality and value consistent
Overall quality

Overall, how would you rate the quality of the … that you buy today?

Meat Expectations Study 2012

Significantly higher and lower at 95% CI
### Consumers value quality

<table>
<thead>
<tr>
<th>n</th>
<th>Ungrade</th>
<th>3*</th>
<th>4*</th>
<th>5*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1,858</td>
<td>49%</td>
<td>100%</td>
<td>147%</td>
</tr>
</tbody>
</table>

*(Price relative to 3*, n = number consumers)*
ASBV Terminal Trends

Graph showing the trends of PWT kg, PFAT / PEMD mm from 2001 to 2011.

- PWWT
- PFAT
- PEMD
Lean Meat Yield trend slowing
LMY decrease tenderness

Effects remain if IMF% included

- 11.55 tenderness scores

- 9.53 tenderness scores
New EQ traits - IMF

Intramuscular fat

- Juiciness, flavour, tenderness
- $4.2 \pm 0.04\%$ (Xbred mean)
- Ideal 4-6%
- Mod/high heritability
- Called marbling in beef
IMF increases eating quality

![Graph showing the relationship between intramuscular fat percentage and eating quality scores for tenderness, overall liking, flavour, and juiciness.](image)

Eating Quality Score

<table>
<thead>
<tr>
<th>Intramuscular Fat (%)</th>
<th>Tenderness</th>
<th>Overall Liking</th>
<th>Flavour</th>
<th>Juiciness</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>2.5</td>
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<td>3</td>
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<td>3.5</td>
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<td>6.5</td>
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<td>7</td>
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<tr>
<td>7.5</td>
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</tbody>
</table>
New EQ traits – Shear force (SF5)

• Mechanical measure of Tenderness (kg or Newtons)
• Higher value = tougher
• Gene markers for this trait in sheep (& beef)
• Intramuscular fat reduces it
• Mod heritability
Shear force vs MSA consumer score

Shear force nails tenderness

Eating quality score

Shear Force at day 5 (Newton)
New EQ traits – colour

- Fresh colour relates to IMF (redder = +ve)
- Fresh colour relates to tenderness (redder = +ve)
- Fresh colour -> lower pHu
You have a role with eating quality

- Eating quality is a must - balanced
- Most eating quality traits are highly heritable
- You have the tools to manage eating quality
- There are some challenging correlations
### Carcase traits are heritable

<table>
<thead>
<tr>
<th>Trait</th>
<th>$h^2$</th>
<th>Breed Effects</th>
<th>Sire Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>Mod</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Shear Force</td>
<td>Mod</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Retail Colour</td>
<td>Mod</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Dress %</td>
<td>Mod</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>IMF</td>
<td>High</td>
<td>**</td>
<td>***</td>
</tr>
</tbody>
</table>
Correlations to manage

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Correlation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMY vs IMF</td>
<td>-ve mod/high</td>
<td>BAD</td>
</tr>
<tr>
<td>LMY vs SF5</td>
<td>+ve mod</td>
<td>BAD</td>
</tr>
<tr>
<td>IMF vs SF5</td>
<td>-ve high</td>
<td>GOOD</td>
</tr>
<tr>
<td>GR fat vs IMF</td>
<td>+ve mod</td>
<td>BAD/GOOD</td>
</tr>
</tbody>
</table>

- 183 sires, 4,110 progeny
- LMY = lean meat yield
- SF5 = Shear force tenderness day 5
- IMF = intramuscular fat
LMY & IMF must be managed
Think sire, not breed

Overall liking

Sire number

No. 1 = Merino
No. 9 = Terminal
No. 75 = Merino
No. 80 = Terminal

5 star loins
4 star loins
3 star loins
RBV for IMF and LMY (2627 Rams)
So what now?

• Consult your ram breeder – they must know

• Balance the traits without over emphasis

• KISS:  IMF +ve
         Shear Force -ve
Questions?

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