Changes to the Carcass Plus Index has decreased lamb carcass value.

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Objectives

- Lean meat yield (LMY %).
- Carcass Plus Index and impact on LMY%.
- Changes to the Carcass Plus Index are costing processors $$$$.
Sheep CRC Information Nucleus Flock

Acknowledgements

Graham Gardner
Andrew Williams
David Pethick
Liselotte Pannier
Andrew Blakely
Jason Siddell
Australian Sheep Breeding Values

- Growth
- Leanness
- Muscling

Industry Indices
- Carcass plus
Australian Sheep Breeding Values

- Growth
- Leanness
- Muscling

Industry Indices
- Carcass plus
# Carcass Plus

<table>
<thead>
<tr>
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## Carcass Plus

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Selection for leanness

- **carcass fat** (Gardner 2010)

- **LMY%** (Gardner 2010, Anderson unpub. 2013)
Hypothesis Carcass Plus

NEW Carcass Plus < OLD Carcass Plus

↓ $
Method
CT scanning
Converting image to tissue type

Hounsfield units:
- Fat: -97 to -47
- Lean: 3 to 53
- Bone: 103 to 153

Frequency distribution:

-97 -47 3 53 103 153

-97 -153
Carcass composition: raw data

\[ y = ax^b \]
Carcass composition: log data

\[ \text{logy} = \log a + b \cdot \log x \]
Allometric Phenotypic Model

$log y = \log a + b \cdot \log x$

**Fixed effects**
- Dambreed (sire type)
- Sex (sire type)
- Flock-year
- Sire type
- BTRT
- Killgroup (flock-year)

**Covariates**
- log CT carcass wt
- Sire Carcass Plus (new or old)

**Random**
- Sire
- Dam*Drop

log CT section lean wt
Allometric Phenotypic Model

\[ \text{logy} = \log a + b \cdot \log x \]

- **Fixed effects**
  - Dambreed (sire type)
  - Sex (sire type)
  - Flock-year
  - Sire type
  - BTRT
  - Killgroup (flock-year)

- **Covariates**
  - \( \log \text{CT carcass wt} \)
  - **Sire Carcass Plus (new or old)**

- **Random**
  - Sire
  - Dam*Drop

- **log CT section lean wt**

Interpret differences as percentages.
Lean yield by section

log Hind Lean = log a + b.log carcass weight

log Saddle Lean = log a + b.log carcass weight

log Fore Lean = log a + b.log carcass weight
Results
Effect of Old Carcass Plus on Saddle Lean Weight

Terminal sire estimates
Old Carcase Plus

P < 0.01
Effect of Old Carcass Plus on Saddle Lean Weight

76 units

Terminal sire estimates
Old Carcase Plus

% difference in saddle lean weight

Old Carcass Plus

$P < 0.01$
Effect of Old Carcass Plus on Saddle Lean Weight

76 units

Terminal sire estimates:
- Old Carcase Plus

% difference in saddle lean weight

6.4%  
P < 0.01
Old Carcass Plus

New Carcass Plus

% difference in saddle lean weight

6.4%

P < 0.01
Old Carcass Plus

New Carcass Plus

% difference in saddle lean weight

Old Carcass Plus

New Carcass Plus

P < 0.01
% difference in hind lean weight

Old Carcase Plus:
-3  -1  1  3  5  7
130 140 150 160 170 180 190 200 210

3.3%

New Carcase Plus:
-3  -1  1  3  5  7
130 140 150 160 170 180 190 200 210

2.8%

% difference in saddle lean weight

Old Carcase Plus:
-3  -1  1  3  5  7
130 140 150 160 170 180 190 200 210

6.4%

New Carcase Plus:
-3  -1  1  3  5  7
130 140 150 160 170 180 190 200 210

5.2%

P < 0.01
% difference in hind lean weight
New Carcase Plus
3.3%
Old Carcase Plus
2.8%

% difference in saddle lean weight
New Carcase Plus
6.4%
Old Carcase Plus
5.2%

% difference in fore lean weight
Sire - Old Carcase Plus
2.2%

No effect
P < 0.01
% difference in hind lean weight
Old Carcase Plus
3.3%

% difference in hind lean weight
New Carcase Plus
2.8%

% difference in saddle lean weight
Old Carcase Plus
6.4%

% difference in saddle lean weight
New Carcase Plus
5.2%

% difference in fore lean weight
Sire - Old Carcase Plus
2.2%

No effect

P < 0.01
<table>
<thead>
<tr>
<th>Carcase Type</th>
<th>% Change in Lean Weight</th>
<th>kg Lean Change</th>
<th>$ Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Carcase Plus</td>
<td>3.3%</td>
<td>157g</td>
<td>$2.67</td>
</tr>
<tr>
<td>New Carcase Plus</td>
<td>2.8%</td>
<td>133g</td>
<td>$2.26</td>
</tr>
<tr>
<td></td>
<td>6.4%</td>
<td>214g</td>
<td>$5.21</td>
</tr>
<tr>
<td></td>
<td>5.2%</td>
<td>157g</td>
<td>$4.23</td>
</tr>
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<td></td>
<td>2.2%</td>
<td>92g</td>
<td>$1.39</td>
</tr>
<tr>
<td></td>
<td>No change</td>
<td>0</td>
<td>$0</td>
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**TOTAL**

- Old Carcase Plus: $9.27
- New Carcase Plus: $6.49
$2.78 more value with Old Carcass Plus

TOTAL

$9.27
Hypothesis Carcass Plus

NEW Carcass Plus

<

OLD Carcass Plus

$
Hypothesis Carcass Plus

NEW Carcass Plus < OLD Carcass Plus

$\downarrow$

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$\downarrow$

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Murdoch University
Impact on processors
Impact on processors

4000 carcasses processed per day

$2.78 less lean per carcass (NewCP)
Impact on processors

4000 carcasses processed per day

$2.78 less lean per carcass (NewCP)

$11,120 less per day
Intramuscular fat (%)

Sire leanness breeding value (mm)

Terminal sire estimates

Conclusion

• Carcass plus will still \( \text{LMY}\% \)

BUT

• Changes to Carcass Plus \( \text{carcass } \$ \)

• New breeding values should be used to maintain eating quality.