Finishing strategies for dairy bulls slaughtered at 15 months of age

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**Introduction**

- Traditionally **steer** production systems dominated
  - Increased interest in **bull** production systems  
    - (Bord Bia, 2015)
  - Greater feed efficiency and carcass output  
    - (Steen, 1995)

- **Current UK market specifications** for dairy bulls  
  - (Dawn Meats, 2011)
  - <16 months of age
  - 270 kg carcass weight or greater
  - Carcass grade of O= 2+ or greater

- Previous research has shown
  - **Grass silage and concentrate diet** resulted in reduced performance
  - **Concentrate ad libitum diet** has the potential to meet specifications  
    - (Murphy et al., submitted)
What are the effects of finishing regime on the performance of Holstein-Friesian bulls slaughtered at 15 month of age?
Materials and methods

60 spring born Holstein-Friesian bull calves
Mean DOB: February 6

- **Phase 1**
  - T1: Pasture only
  - T2: Pasture + 3 kg DM barley
  - T3: Pasture + 3 kg DM barley
  - T4: Pasture + 3 kg DM maize

- **Phase 2**
  - T1: Ad libitum barley finish
  - T2: Ad libitum barley finish
  - T3: Ad libitum maize finish
  - T4: Ad libitum barley + megalac finish

- **Aug 12** to **Nov 3**: at pasture
- **May/June**: indoors
Diet Composition

Barley based concentrate = 800 g/kg barley; 140 g/kg soya bean meal; 40 g/kg molasses; 20 g/kg minerals

Maize based concentrate = 400 g/kg maize meal; 400 g/kg barley; 140 g/kg soya bean meal; 40 g/kg molasses; 20 g/kg minerals

Barley + megalac concentrate = 750 g/kg barley; 140 g/kg soya bean meal; 50 g/kg megalac; 40 g/kg molasses; 20 g/kg minerals
Materials and Methods

- **Rotationally grazed** in a paddock system during phase 1
- **Pre-grazing** sward height: 9.3 cm
- **Post-grazing** sward height: 5.6 cm
- Adapted to 3 kg DM of concentrates per head daily over a **10 day period**
- Concentrates offered in **1 feed**
Materials and Methods

- All bulls housed on November 3
- Housed on slatted floor accommodation
  - 3 replicates per treatment
- Adapted to concentrates *ad libitum* over a 21 day period
  - Fresh concentrates offered daily
  - Weigh backs completed *twice weekly*
- Cattle weight *fortnightly*
- Statistical analysis
  - **Fixed effect:** Finishing regime
Results
## Animal performance

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>SEM</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start weight (kg)</strong></td>
<td>175</td>
<td>181</td>
<td>173</td>
<td>181</td>
<td>6.1</td>
<td>0.7628</td>
</tr>
<tr>
<td><strong>Housing weight (kg)</strong></td>
<td>247</td>
<td>256</td>
<td>263</td>
<td>271</td>
<td>7.9</td>
<td>0.2065</td>
</tr>
<tr>
<td><strong>Slaughter weight (kg)</strong></td>
<td>546</td>
<td>572</td>
<td>554</td>
<td>552</td>
<td>15.0</td>
<td>0.5952</td>
</tr>
</tbody>
</table>
Concentrate DMI during finishing

<table>
<thead>
<tr>
<th>kg DM per head</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1673\textsuperscript{ab}</td>
<td>1774\textsuperscript{b}</td>
<td>1578\textsuperscript{a}</td>
<td>1655\textsuperscript{ab}</td>
</tr>
</tbody>
</table>

P<0.01
Total concentrate DMI

P<0.001

1673a

kg DM per head

1600

1500

T1

The Irish Agriculture and Food Development Authority
# Carcass performance

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>SEM</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcass weight (kg)</td>
<td>283</td>
<td>296</td>
<td>288</td>
<td>281</td>
<td>8.4</td>
<td>0.5680</td>
</tr>
<tr>
<td>Kill out proportion (g/kg)</td>
<td>518</td>
<td>517</td>
<td>521</td>
<td>509</td>
<td>3.5</td>
<td>0.1191</td>
</tr>
</tbody>
</table>
Conclusion

- All strategies met the **carcass weight** and **conformation score** specifications

- Only T2 and T3 also met **fat score** requirements

- **Supplementing calves** at pasture is required to achieve market specifications

- Combining supplementation at pasture with *ad libitum* barley or maize based finishing diets achieved market specifications
Thank you for your attention

Questions?