The cost of rearing dairy heifers
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Introduction

- Rearing heifers accounts for approximately 20% of a dairy system’s production costs after feed.
- The direct and indirect cost of heifer rearing can be difficult to quantify due to the time lag between input costs occurring and production outputs.

Aims

- Record inputs and outputs of heifer rearing practices on dairy farms in Great Britain.
- Generate accurate data on the cost of heifer rearing taking into account the cost of mortality.
- Identify critical factors that influence the cost of rearing heifers.
- Estimation of break even lactation number to cover the cost of heifer replacement.

Methodology

- Visited 102 dairy farms in England, Scotland and Wales between March and August 2013 (Figure 1).
- Completed a detailed survey on each farm.
- Calculated the cost of each input and total cost of rearing on a per heifer basis.
- Completed a gross margin analysis for each farm.
- Calculated the length of the repayment period to determine when heifers ‘break even’.

Results

- The largest expense was feed, followed by labour and bedding (Graph 1).
- The average total cost of rearing, including fixed, variable and opportunity costs, and interest on capital was £1,819.01 (range £1,073.36 to £3,070.46).
- Daily costs per heifer are shown in Table 1.

<table>
<thead>
<tr>
<th>Rearing Period</th>
<th>Average (£)</th>
<th>Min – Max (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth – weaning</td>
<td>3.14</td>
<td>1.68 – 6.11</td>
</tr>
<tr>
<td>Weaning – Conception</td>
<td>1.65</td>
<td>0.75 – 2.97</td>
</tr>
<tr>
<td>Conception – Calving</td>
<td>1.64</td>
<td>0.56 – 2.86</td>
</tr>
<tr>
<td>Total Rearing Period*</td>
<td>2.31</td>
<td>1.47 – 3.35</td>
</tr>
</tbody>
</table>

* Includes fixed and variable costs, interest on capital, opportunity cost and cost of mortality.

- The average gross margin for the entire rearing period was £441.66 (range –£367.63 to £1,120.08).
- Average cost of mortality was £139.83 per surviving heifer (range £103.49 to £146.19).
- On average, heifers paid back their cost of rearing by 1.5 lactations (range 1.4 to 6.4 lactations).
- Age at first calving is strongly associated with the cost of rearing (Graph 2).

Conclusions

- There was large variation in costs between individual farms and also within similar calving systems.
- Results indicate that management decisions on key reproductive events influence the cost of rearing.
- While decisions surrounding nutrition during the birth to weaning period have a large impact on the cost of rearing, the period only accounts for, on average, 10.8% of total rearing costs.

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Are calves with friends more content?
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Introduction
- In the UK, 60% of calves are housed individually up to weaning, driven by attempts to reduce the risk of disease transmission
- The remainder are housed in pairs or small groups
- Several studies have shown that individual rearing in early life can impair solid feed intake and reduce the ability to cope with challenges such as weaning and regrouping.

Aim
- To test the effects of early and late pair-housing versus individual housing on calf health, concentrate intake, daily liveweight gain and distress response to weaning.

Methodology
- Forty female Holstein-Friesian calves were allocated at birth to one of 3 housing treatments: individual (8 calves), pair-housed from d5 (8 pairs) or d28 (8 pairs)
- Calves were fed 4l/d increasing to 6l/d by d21 of milk replacer. Milk replacer rate was 150g per litre
- Calves were weaned gradually over a 3d period (d48–d50)
- All calves were moved to a group pen of 5 on d55
- Feed intake, weight gain, health and behaviour (vocalisations) were recorded.

Results
- Vocalisations are a distress response to weaning, this response was strongest in individually housed calves
- Individual calves vocalised 4x more than calves paired on d5 and 2x more than calves paired on d28 (Graph 1)
- There was no statistical difference in concentrate intake (d5–d54), daily liveweight gain (d0–d55) or health (respiratory and faecal scores) between calves that were paired versus individually housed throughout the trial (Graphs 2 and 3).

Conclusions
- Contrary to popular belief, calves can be pair-housed without detriment to health or production
- Mode of feeding needs to be considered to reduce cross-sucking. Teat feeders, especially with low flow rates are likely to reduce cross-sucking over bucket feeding
- Pair-housing calves at 5 days after birth reduced response to weaning
- Individual housing may impair the ability of calves to cope with challenges, in this case weaning.

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