KW ALTERNATIVE FEEDS: MEDIUM ARTICLE

Making feed efficiency a priority is critical to beef unit profitability

Date issued: 19 Sep 17
Reference: KW2017-18_Q1-02
Length: 812 words; 3-4 minutes

With improvements in feed conversion efficiency (FCE) having three times the impact on grower and finisher profitability than increases in liveweight gain (LWG), it’s a topic that needs to be taken much more seriously by UK beef producers, claims KW nutritionist Charlotte Ward.

“Feed accounts for around 60-80% of beef production variable costs, yet is typically converted into growth with a relatively poor lifetime FCE of more than 6:1,” she explains. “It means that across the entire life of the animal, an average of 6kg of feed are required to produce every 1kg of growth.

“Too often, the focus is on the cost of feed per tonne, yet it’s the cost per kg of liveweight gain (LWG) that determines margins. And because even small improvements in FCE can have a substantial impact on cost per kg LWG it’s a key factor in determining overall profitability.”

Factors affecting FCE
Overall FCE is affected by a number of factors, the most important of which are genetics, sex, age, health, environment and feeding. And while the potential efficiency with which each animal converts feed into growth is set by genetics, other factors can be influenced by the producer.

“Regardless of the genetics and sex of the animal, the most inefficient cattle can be up to 15% less effective at converting feed into LWG through their lifetime,” Ms Ward highlights. “During a typical finishing period alone that can cost up to £30/head.”

Age has a particularly strong influence, and adapting systems to make the most of the much higher FCE in younger animals can produce substantial gains. Table 1 highlights this effect, with 1kg LWG in cattle at 750kg LW costing 51% more – in terms of feed costs – than when the same cattle were at 450kg LW.

Table 1 – Impact of age on feed efficiency and cost per kg of liveweight gain (Source: EBLEX)

<table>
<thead>
<tr>
<th>Liveweight (kg)</th>
<th>DMI (kg/day)</th>
<th>Daily LWG (kg)</th>
<th>FCE (kg feed:kg LWG)</th>
<th>Cost of gain1 (p/kg LWG)</th>
<th>Efficiency loss (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>450</td>
<td>10.0</td>
<td>1.20</td>
<td>8.3:1</td>
<td>120</td>
<td>-</td>
</tr>
<tr>
<td>550</td>
<td>11.0</td>
<td>1.15</td>
<td>9.6:1</td>
<td>139</td>
<td>16%</td>
</tr>
<tr>
<td>650</td>
<td>11.8</td>
<td>1.10</td>
<td>10.7:1</td>
<td>155</td>
<td>29%</td>
</tr>
<tr>
<td>750</td>
<td>12.5</td>
<td>1.00</td>
<td>12.5:1</td>
<td>181</td>
<td>51%</td>
</tr>
</tbody>
</table>

1 Based on typical ration cost of £145/t DM

Driving early growth
“Such figures highlight the importance of driving early growth when looking to improve efficiency,” Ms Ward continues. “Weight gained more cost-effectively early on is growth that doesn’t need to be achieved later when it’s more expensive to produce.
“For suckler herds, creep feeding should therefore begin as early as possible, typically ad lib from six weeks of age till weaning, then tapered off as animals move onto their growing rations. In housed growing cattle, it means adapting rations to maximise fast, lean growth at a young age.”

Ms Ward’s advice is to start by replacing any low-cost protein sources in early grower rations – such as urea – with higher quality protein feeds like British wheat distillers’ feed, rapemeal or soya bean meal. Supplying sufficient structural and digestible fibre to promote good rumen function is also critical to supporting efficient growth.

“Always make sure cattle have access to straw, whether in the mixed ration or in racks, and include digestible fibre feeds like soya hulls or sugar beet feed to balance the starch energy in the ration. And if the total ration starch-plus-sugars content is over 35%, consider Vistacell live yeast to help keep acidosis under control.”

Research trials have shown a 4-6% improvement in FCE when adding a live yeast to the rations of intensively finished beef cattle, equivalent to extra LWG of around 100g/day for the same feed input (figure 1). Choosing the best value feeds – rather than the cheapest – will also have a substantial impact.

**Figure 1 – Effect of a live yeast on beef feed efficiency and daily liveweight gain**

**a) Feed conversion efficiency**

**b) Daily liveweight gain**

**Better value rations**

“Higher quality feeds may cost more per tonne, but they’re often better value because they supply more nutrients per £ spent and are converted into growth more efficiently for a lower overall cost per kg of LWG,” Ms Ward states.
“For example, feeds like processed bread can often be a better choice that bought-in cereals when it comes to supplying starch, whilst the 13.4MJ ME/kg DM wheat-gluten moist feed Traffordgold is a great value source of energy and digestible fibre that also promotes intakes.”

Where high protein quality isn’t needed, such as during finishing, Ms Ward recommends making good use of urea to reduce feed costs, whether added directly to a total mixed ration (TMR) or included in a high protein liquid feed such as ReguPro 38. Another cost-effective option is to use a high protein distillery syrup like Proflo.

Reducing stress impact
“Finally, realise that any form of stress will impair efficiency, whether due to poor housing conditions, mineral deficiencies or inadequate access to clean drinking water. Minimising the impact of disease challenges, lameness and metabolic disorders like acidosis is also critical,” she adds.

For housed cattle, group sizes should ideally be kept below 20, for example, and remain consistent to minimise energy wasted through aggressive behaviour. Efficient handling systems and calm staff can also make a big difference.

“The most efficient beef units tend to be those where such details are a high priority,” Ms Ward concludes. “It’s when all these factors are combined as part of a system that minimises stress, maximises early growth and finishes at lighter weights that the greatest benefits are seen.”

Ends

List of feeds:
British wheat distillers’ feed (digestible fibre energy + high quality protein)
Processed bread (starch energy)
Proflo (sugar energy + protein + palatability + binding)
Rapemeal (protein)
ReguPro 38 (sugar energy + protein + palatability + binding)
Soyabean meal (high quality protein)
Soya hulls (digestible fibre energy)
Sugar beet feed (digestible fibre energy)
Traffordgold (digestible fibre energy + protein + palatability + binding)
Vistacell (metabolically active live yeast)