Feeding hay ad libitum is the most popular winter feeding strategy in the Midwest. In most cases, hay is packaged into large round bales and fed in some type of feeder. Many different designs claim to reduce hay waste, thus research in this area has helped identify designs that reduce hay waste.

Low hay supplies prompt me to review this research. Many producers need to stretch the hay they have. Those looking to buy more hay this winter may find themselves paying steep premiums. Reducing hay waste can be a worthwhile investment in any year, but when hay prices are elevated it pays quickly.

I pulled two trials that do a nice job of showing the benefits to an improved hay feeder design. First, Buskirk et al. (2003) evaluated large round bale feeder design and the subsequent effect of hay utilization and hay waste. The study compared four different hay feeder designs: cone, ring, trailer, and cradle. All feeder designs resulted in similar cow intakes. However, the amount of hay wasted was different between designs. Hay waste was least to greatest in this order: cone, ring, trailer, and then cradle. The type of hay offered in this trial was second cutting alfalfa and orchard grass. The hay tested approximately 13% CP, 53% NDF, 35% ADF on a dry matter basis. This trial shows that feeder design does impact hay waste. This trial is illustrated in Table 1 and the feeder design is shown in Figure 1.

<table>
<thead>
<tr>
<th>Item</th>
<th>Cone</th>
<th>Ring</th>
<th>Trailer</th>
<th>Cradle</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial cow weight, lb.</td>
<td>1383</td>
<td>1389</td>
<td>1390</td>
<td>1385</td>
<td>9.5</td>
</tr>
<tr>
<td>Hay disappearance, lb DM/hd/d</td>
<td>26.4</td>
<td>26.6</td>
<td>30.5</td>
<td>28.3</td>
<td>0.9</td>
</tr>
<tr>
<td>Hay waste, lb DM/hd/d</td>
<td>0.9</td>
<td>1.5</td>
<td>3.5</td>
<td>4.2</td>
<td>0.22</td>
</tr>
<tr>
<td>Hay waste, %</td>
<td>3.5</td>
<td>6.1</td>
<td>11.4</td>
<td>14.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Hay intake, lb DM/hd/d</td>
<td>25.3</td>
<td>25.1</td>
<td>27.0</td>
<td>24.2</td>
<td>0.9</td>
</tr>
<tr>
<td>Intake/cow BW, %</td>
<td>1.8</td>
<td>1.8</td>
<td>2.0</td>
<td>1.8</td>
<td>0.1</td>
</tr>
</tbody>
</table>

* Hay waste as a percentage of hay disappearance
** Within a row, least square means without a common superscript letter differ (P< .05)
Researchers at Oklahoma State University (Lalman) also looked at hay feeder design and associated wastes. Four different feeder designs were evaluated: cone, sheet, ring, and poly. Hay waste for the feeders as listed in parenthesis: cone (5.3%), sheet (13.0%), ring (20.5%), and poly (21.0%). Costs were analyzed as well; see Table 2 and Figure 2. They assumed a hay price of $116/ton or $70/bale. Assuming a producer with 30 cows will feed 180 bales in a season, the costs associated with hay waste were $667 (cone), $1,638 (sheet), $2,583 (ring), and $2,646 (poly) per season. It is easy to see that improved feeder designs like the cone-shaped hay feeder can save producers money by reducing hay waste.

Summary

In summary, bale feeder design can impact hay waste. Reducing loss from hay waste can not only be a good way to stretch short hay supplies, but it can also contribute as a cost-saver to the cow/calf enterprise. Reducing waste is a component of lowering feed costs. Profitable cow/calf producers will always be focused on reducing feed costs.

<table>
<thead>
<tr>
<th>TABLE 2. EFFECT OF FEEDER TYPE ON HAY WASTE AND COST (LALMAN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeder Type</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Waste, % bale wt.</td>
</tr>
<tr>
<td>Total waste, lb/bale</td>
</tr>
<tr>
<td>Cost of waste/bale, $</td>
</tr>
<tr>
<td>Cost of wasted hay/month, $&lt;sup&gt;*&lt;/sup&gt;</td>
</tr>
<tr>
<td>Cost of wasted hay/season, $&lt;sup&gt;*&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>x</sup><sup>y</sup> Within a row, least square means without a common superscript letter differ (P< .05)
<sup>*</sup>Assuming $70 per 1,200 bale, feeding 180 bales per season
