Decreasing Early Lactation Culling: Non-Nutritional Factors

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Reasons Cows Leave

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Voluntary</td>
<td>19.3%</td>
<td>21.3%</td>
<td>39.1%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Repro</td>
<td>26.5%</td>
<td>25.3%</td>
<td>22.1%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Mastitis</td>
<td>26.9%</td>
<td>25.1%</td>
<td>15%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Dis/injury</td>
<td>6.0%</td>
<td>4.1%</td>
<td>12%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Death</td>
<td>4.8%</td>
<td>3.8%</td>
<td>5.8%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Disposition</td>
<td>0.9%</td>
<td>0.9%</td>
<td>0.7%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Feet &amp; legs</td>
<td>16.3%</td>
<td>14.2%</td>
<td>3.6%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Other</td>
<td>4.1%</td>
<td>3.9%</td>
<td>8.5%</td>
<td>1.4%</td>
</tr>
</tbody>
</table>
Mortality appears to be increasing (ID)

Death rate in dairy herds

- An average of 8% of cows in western dairy herds die
- The range of death loss is 5.25 to 12.3% by state
- Very little information of causes of death

Olson, 2004
When are cows leaving herds

Stewart et al., 2001

Factors affecting fresh cow health and performance

- Stocking density
- Pen moves
- Cow handling
- Facilities
- Calving intervention
Stocking Density

Feeding Space and DMI: Close-Up Cows

Buelow, 1999
Cortisol levels associated with overcrowding cows

![Graph showing cortisol levels over time for different lactation stages.]


Other observations

- Adult cows more dominant
- Higher cortisol in older cows associated with alley lying at night
- 1st lactation cows ate at less favorable times and lay down in less preferred places
- 1st lactation cow spent more time walking and lying alley every day
- 1st lactation cows spent more time eating and walking at night due to lack of stall space

Other research

- Increased feed access and reduced competition may reduce the risk of metabolic problems such as acidosis and DA’s (Shaver, 2002; Cameron et al., 1998)

- Each 10% increase in pre-fresh stocking density above 80% decreased milk 1.6 lb/day in 1st lactation cows (Cook et al., 2004)

Recommendation

Provide at least one stall per cow and a minimum of 30 inches of linear bunk space per cow for pre-fresh cows

Cook et al, 2004
Changes of scenery represent a stress to cows...

- Aggressive behavior was highest for two days after moves (Kundo & Hurnik, 1990)

- Subordinate heifers produced 3.8-5.5% less milk in the second week after moving and showed altered patterns of behavior (Hasegawa et al., 1997)
Effect of maternity pen stay on performance after calving

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Short (&lt;3 d)</th>
<th>Long (≥ 3 d)</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herd 1 (Avg. 4.5 d in maternity pen)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calving, number</td>
<td>112</td>
<td>182</td>
<td>---</td>
</tr>
<tr>
<td>Sold or dead by 60 d, %</td>
<td>3.6</td>
<td>9.3</td>
<td>2.6X</td>
</tr>
<tr>
<td>1st projection, lbs</td>
<td>20,777</td>
<td>20,205</td>
<td>-572</td>
</tr>
<tr>
<td>Herd 2 (Avg. 5.9 d in maternity pen)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calving, number</td>
<td>34</td>
<td>129</td>
<td>---</td>
</tr>
<tr>
<td>Sold or dead by 85 d, %</td>
<td>2.9</td>
<td>9.3</td>
<td>3.1X</td>
</tr>
<tr>
<td>Subclinical ketosis, %</td>
<td>6.9</td>
<td>16.0</td>
<td>2.3X</td>
</tr>
<tr>
<td>Displaced abomasum, %</td>
<td>2.9</td>
<td>5.4</td>
<td>1.9X</td>
</tr>
</tbody>
</table>

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Alternatives to minimize moves

<table>
<thead>
<tr>
<th>Typical d relative to calving</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close up pen</td>
<td>Close up pen (through calving)</td>
<td></td>
</tr>
<tr>
<td>Maternity pen</td>
<td>Maternity pen (when feet show)</td>
<td></td>
</tr>
<tr>
<td>Hospital pen (non-saleable milk)</td>
<td>1 to 3</td>
<td></td>
</tr>
<tr>
<td>Post fresh pen</td>
<td>1 to 21</td>
<td>1 to 21</td>
</tr>
<tr>
<td></td>
<td>3 to 21</td>
<td>3 to 21</td>
</tr>
</tbody>
</table>
Proximity of move

- Familiarity of surroundings important to minimize stress
  - Headlocks
  - Water
  - Parlor
  - Stalls

Recommendation

- Minimize moves for 3 days before and after calving
- Provide as much familiarity to surroundings as possible – especially heifers
Calm Cow Handling

Transition management facility observations

- Personnel walking through cattle several times per day:
  - Heifers (especially purchased) become accustomed to humans and handling
  - Identify problems early
- Facilities design to allow cow movement by one person in a calm manner decreases frustration and increases productivity
- Walking heifers through parlor several times before calving improves adaptation to parlor

Stewart et al, 2004
Recommendations

- **Calm handling (not speed) must be emphasized by management**

- **Design facilities to allow cow movement by one person in a calm manner**
Comfortable Facilities

Includes:
- Clean, dry, comfortable lying surface
- Stall design and maintenance
  - Designed to accommodate largest 25% of cows
  - Bedding depth
  - Bedding maintenance
- Calving area
- Walking surface
- Ventilation
- Heat abatement
Cow Management at Calving

Typical Problems:
- Too early intervention
- Too aggressive intervention
- Untrained personnel
- Lack of patience

Results:
- Increased calf death loss
- Increased cow injury

Appropriate intervention at calving
Appropriate intervention at calving

- Cows must be completely dilated before assistance
- Cleanliness is important
- Calm cow movement near calving reduces time to delivery
- Proper cow care after delivery will ensure a great start

Bottom Line

Many non-nutritional factors may affect transition cow health and performance

If too many cows are struggling through transition examine:

- Stocking density
- Movement around calving and grouping
- Cow handling
- Facilities
- Management at calving