Claw health assessment in dairy cattle herds

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Lameness...

... is the number one welfare issue in dairy herds:

Painful, leads to culling, has an impact on production, has a high prevalence, long duration, negatively affects public perception (Ventura et al., 2015)

Chronic stress (Kovács et al., 2015)
Material and methods – herd assessments

- Herd level claw health assessments in 8 Hungarian dairy cattle herds
- Locomotion scoring and body condition scoring (2663 cows)
- Farm visits (hygiene, cow comfort, predisposing factors)
- Analysis of claw trimming data

(Sprecher et al., 1997)
Prevalence of lameness in the herds

International data:
0-69% lame on farms (Solano et al., 2015);
Average: 30-55% clinical lame, 3-8% severe (von Keyserlingk et al., 2012)

The scores on a "healthy farm" should be:
1: 75%
2: 15%
3: 9%
4: 0.5%
5: 0.5%

Mainly DD, some SU and laminitis
The locomotion scores on the farms assessed

Prevalence of score 1 (%): 17.8  35.7  29.7  29.3  29.7  11.1  25.8  38.1

a, b, c: The different letters indicate significant differences (p < 0.05)
Associations between the BCS and the locomotion score

a,b,c,d: The different letters indicate significant differences (p < 0.05)
Associations between the BCS and the locomotion score

The distribution of the BCSs in the different locomotion score categories

International data: 46% of the cows with BCS $\leq 2$ were lame (Solano et al., 2015)
Associations between the BCS and the locomotion score

• Low BCS, as a consequence of lameness
  – Lame animals spend less time with feeding, compared to non-lame ones, particularly in early lactation (Norring et al., 2014)
  – There is a higher level of aggression against lame animals at the feed bunk, the sound ones chase the lame cows away from the feed. (See our poster, P.06)

• Low BCS, as the reason of lameness
  – The decreasing BCS in the first 4 weeks of lactation increases the chance of being lame. BCS should be over 2.75 (Randall et al., 2015)
  – The amount of adipose tissue in the heel decreases during the phase of negative energy balance. (Bicalho et al., 2009)
The quality of walkways and resting areas

<table>
<thead>
<tr>
<th>Farm</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Straw yard</td>
<td>Cubicle</td>
<td>Straw yard</td>
<td>Straw yard</td>
<td>Deep bedding</td>
<td>Straw yard</td>
<td>Deep bedding</td>
<td>Cubicle</td>
</tr>
<tr>
<td>Bedding hygiene</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Leg cleanliness</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

- There were less lame animals on the farms with cubicles than on the farms with deep bedding or straw yards.
- Bedding material in deep bedding or straw yards was often unhygienic.
- The quality of walkways varied among the farms. There were bad quality, unhygienic tracks on Farms 1-4.
### Claw trimming and leg treatments

<table>
<thead>
<tr>
<th>Farm</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimming</td>
<td>2x</td>
<td>cont. own</td>
<td>2x</td>
<td>2x + own</td>
<td>2x + occasionally</td>
<td>2x</td>
<td>cont. own</td>
<td>cont. own</td>
</tr>
<tr>
<td>Hoof bath</td>
<td>no</td>
<td>yes*</td>
<td>no</td>
<td>yes</td>
<td>yes*</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Size of hoof bath</td>
<td>-</td>
<td>enough</td>
<td>-</td>
<td>-</td>
<td>enough</td>
<td>-</td>
<td>enough</td>
<td>small</td>
</tr>
</tbody>
</table>

- There were less lame cows on the farms performing more frequent hoof trimming and claw treatment actions (not only 2x yearly)
- None of the farms performed regular lameness detection on a herd level
• According to literature, farmers detect only 25-40% of the lameness. (Leach et al., 2010; Šárová et al., 2011)

• Early detection of lameness is vital – the earlier the treatment, the sooner the healing, and less recurrence. (Leach et al., 2012)

• Regular individual hoof treatment is very effective against hoof disorders and lameness. (Groenevelt et al., 2013)

• Hoof bathing should be performed 2-3 times weekly if the prevalence of DD reach 10% on a herd level. (Dairy Co., 2009)
• Herd level hoof bathing is rather a preventive than a therapeutic tool

• The most important factors in the healing of DD (Relun et al., 2012)
  – cleanliness of the legs (depends on barn hygiene),
  – lower size of DD spots – and less M2 lesions (depends on effective recognition and frequent treatments)
  – individual treatment of the affected animals (depends on the effective recognition and frequent assessments and treatments)
Conclusions

- We can assess the herd-level lameness situation by locomotion scoring.
- Identifying predisposing factors helps to determine the most suitable preventive and treatment protocols.
- Continuous prevention is very important (lameness detection, herd-level claw trimming and foot bathing, proper environmental hygiene, feeding and nutrition).
- DD is the mastitis of the legs (Roger Blowey), it should be treated as such!
Thank you for your attention

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