Overview of different data sources in the feet and legs complex

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Data sources

• Conformation scores – feet and legs
• Claw health – claw trimming
• Claw health – veterinary treatments
• Locomotion
• Lameness
• Automatic Milking Systems with associated sensors
Conformation scores – feet and legs

+ Routine recording
+ Available
+ ICAR standards

− Low genetic correlations to claw health (e.g. Ødegård et al., 2014)

Feet and leg conformation and claw health

Genetic correlations between claw disorders and feet and leg conformation traits were 0, low, or moderate

<table>
<thead>
<tr>
<th>Rear leg foot angle</th>
<th>Hoof quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear leg rear view new</td>
<td>0.15 (0.05)</td>
</tr>
<tr>
<td>Rear leg rear view old</td>
<td>-0.04 (0.05)</td>
</tr>
<tr>
<td>Foot angle side view</td>
<td>0.09 (0.05)</td>
</tr>
<tr>
<td>Hoof quality</td>
<td>0.86 (0.03)</td>
</tr>
</tbody>
</table>
Claw health – claw trimming

• Recording of claw health status at claw trimming:
  Healthy or affected of 1 or more of 9 claw disorders:
  – Corkscrew claw
  – Heel horn erosion
  – Dermatitis
  – Sole ulcer
  – White line disorder
  – Haemorrhage of sole and white line
  – Interdigital phlegmon
  – Lameness
  – Acute trauma

From: Norwegian claw health recording system
Nordic Claw Atlas

- Joint Nordic recording system for claw disorders
- Electronic recording
- Harmonization of trait definitions

Claw health – veterinary treatments

- Included in disease recording systems
- Norway: same disease codes as for claw trimming data
- Low frequency
- Could also be producer recorded
Locomotion

+ Direct measure
- Difficult to score
- Training & expertise

Lameness

- Subjective scoring
- Unspecific
- Many different causes

From: Nordic Claw Atlas 2013
Automatic Milking Systems with associated sensors

• Records on cow traffic and behaviour (e.g. milking frequency, pedometer) may provide useful indicators of claw health
• Objective & frequent measures recorded routinely

• Future data sources?
  – Automated methods of lameness detection
  – Video motion analysis
  – Automated locomotion score
  – Systems for monitoring locomotion and posture behaviour
  – Weight distribution among legs when standing

Data sources

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