IMPACT OF HEALTH DATA QUALITY ON BREEDING EFFICIENCY IN AUSTRIAN FLECKVIEH COWS

Conclusions

- Data validation and reliable distinction between farms with low frequencies and farms with incomplete health data documentation is a challenge.
- Stringent data validation results in higher heritabilities and higher incidence rates. Impact is higher for fertility traits.
- Indication that vets with fewer diagnoses tend to not fully document drugs without waiting period. Direct electronic transmission of health data by veterinarians advantage for data quality.
- For breeding value estimation only farms with continuous and reliable diagnoses documentation are used (Austria: first breeding values for health traits since April 2009).
- Evaluation of use of additional health information observed and recorded by farmers is currently carried out.

Background and Aims

- Austrian health monitoring system is based on veterinary diagnoses.
- Health monitoring system is operating since 2006.
- At present 12,800 farms with 210,000 cows are participating.
- Project aims: support for herd management and breeding values for health traits.
- Impact of data validation on the estimation of breeding values for health traits is analysed.

Heritabilities and incidence rates

### Mastitis (10 d before to 50 d after calving)

<table>
<thead>
<tr>
<th>Data validation</th>
<th>n</th>
<th>Incidence rate (%)</th>
<th>Heritabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>stringent</td>
<td>17,167</td>
<td>5.03</td>
<td>0.076&lt;sub&gt;0.032&lt;/sub&gt;</td>
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<tr>
<td>less stringent</td>
<td>36,004</td>
<td>4.58</td>
<td>0.069&lt;sub&gt;0.022&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

### Fertility disorders (to 150 d after calving)

<table>
<thead>
<tr>
<th>Data validation</th>
<th>n</th>
<th>Incidence rate (%)</th>
<th>Heritabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>stringent</td>
<td>14,109</td>
<td>13.35</td>
<td>0.064&lt;sub&gt;0.031&lt;/sub&gt;</td>
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<tr>
<td>less stringent</td>
<td>29,142</td>
<td>10.64</td>
<td>0.047&lt;sub&gt;0.014&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

Data and validation

- Fleckvieh cows with calving between Jan. 2007 and Aug. 2008 and parity 1 to 5.
- minimum number of 0.1 diagnoses* per cow, year and farm general precondition.
- Dataset with stringent criteria: only farms assisted by vets with more than 500 diagnoses included in the database.
- Dataset with less stringent criteria: assisted by vets with more than 50 diagnoses included.

*aftertreatments not considered

Trait definition

- Mastitis (10 d before to 50 d after calving).
- Fertility disorders (to 150 d after calving) including metritis, cystic ovarian disease, retention of fetal membranes and puerperal disease and anoestrus not included (lowly heritable).

Models

- Binary traits (0/1)
- Heritabilities: threshold sire model
- Effects: parity (fixed), herd*year*season (random), sire (random)
- Incidence rate: only one diagnosis per cow within period considered.