First national recording of health traits in dairy cows in the Czech Republic

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Czech Republic
Actual situation in the Czech Republic

Genetic evaluation:
- Centralised (www.plemdat.cz)
- SS GBLUP – 2015 validated Interbull
- **H**: EBV for 30 traits
- Economic weights (ECOWEIGHT, Wolf et al., 2013)
- Selection index for Holstein “SIH”

Health traits:
- **SCS**: EBV + EW
- **Mastitis, CLD**: EBV
- Economic weights (ECOWEIGHT, Wolf et al., 2013)
- Mastitis: -118 €/case/cow/yr
- CLD: -103 €

- **H**: 9,800 kg milk
- 280 cows/ herd
- 95% of all cows in PT
Why health traits?

Reasons for culling of dairy cows in CR (%):
- Low yield: >80%
- High age: 9%
- Other breeding: 6%
- Reproduction disorders: 10%
- Dystocia: 8%
- Udder health: 22%
- Other health: 44%
Challenge in the Czech Republic !!!

- How to **get the data**?
- **Records of reasons** for medication (veterinary prescription)
- **Documentation** is very variable (paper - 20 farm manag. softwares)
- **Non-uniform system** of diagnoses
- **No central database** to collect and store the data
Web application for farmers

✓ connected to already existing national databases of PT
✓ includes:
  ✓ health key based on ICAR key of data recording
  ✓ updated database of approved medications
6 groups:
- Reproduction
- Udder
- Digestion/Metabolism
- Feet & legs
- Infections
- Culling/death
How to motivate farmers to use the “Diary of diseases & medication”? 

✓ Money + Outputs useful for herd management:

Lists of
✓ cows for treating (claw, oestrus synchronization)
✓ cows in withdrawal period

Stats and graphs:
✓ Structure of diseases and medication per mo / yr
✓ Average medication costs per cow /mo /yr
✓ % of animals in herd: sick, culled and dead animals
✓ Systematic records keeping (requested by law)
✓ Medication stock holding (records)

Future: + other benefits (EBV)
Pilot study

- Data collected by farmers via electronic survey
- Covered period from July 2015 till June 2016
- Incidence of 20 common diseases
  - udder disorders (1)
  - reproduction (5)
  - metabolism (5)
  - feet & legs (9)
- Other data added from database of PT
  (date of calving, parity, breed, milk yield)
289,802 cows (78% of their total number in CR)

Cows with diagnosis: from 40% (in F) to 48% (in H)

- Not treated: 55%
- At least 1 diagnosis: 45%

1,183 herds

Cows with data:
- Holstein: 48%
- Crossbrees: 28%
- Fleckvieh: 22%
- Other: 2%
**Editing of data**

1. **Date of calving**
   - Start of period: 1.7.2015

**60 days before EP:**
- Clinical mastitis MAS, cystic ovaries CYS, endometritis EM, foot and claws disorders LEGS, and metabolic diseases except of MF

**20 days before EP:**
- Metritis MET

**7 days before EP:**
- Dystocia DI, retained placenta RP, milk fever MF

2. **Incidence of diagnosis:**
   - **Herd < 20 cows**
     - No limit for incidence/herd
   - **Herd ≥ 20 cows**
     - ≥ 1 case (incidence)/herd
   - Only the first treatment
   - 1 incidence per cow and lactation (LIR)
### Results

<table>
<thead>
<tr>
<th>Disease</th>
<th>Herds (%)</th>
<th>LIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastitis</td>
<td>87</td>
<td>19.8%</td>
</tr>
<tr>
<td>DI, RP</td>
<td>69</td>
<td>5.2%</td>
</tr>
<tr>
<td>Metritis</td>
<td>68</td>
<td>11.3%</td>
</tr>
<tr>
<td>CYS, EM</td>
<td>68</td>
<td>10.7%</td>
</tr>
<tr>
<td>Milk fever</td>
<td>49</td>
<td>1.7%</td>
</tr>
<tr>
<td>Other recumbency</td>
<td>30</td>
<td>1.0%</td>
</tr>
<tr>
<td>Primary ketosis</td>
<td>29</td>
<td>2.7%</td>
</tr>
<tr>
<td>Subclinical ketosis</td>
<td>28</td>
<td>3.2%</td>
</tr>
<tr>
<td>Secondary ketosis</td>
<td>22</td>
<td>1.5%</td>
</tr>
<tr>
<td>Feet and legs</td>
<td>77</td>
<td>11.0%</td>
</tr>
</tbody>
</table>

*comparable to other studies*

*< than 25% of farmers reported metabolic diseases (other than MF)*

*might be underestimated (terminology)*

< than 25% of farmers reported metabolic diseases (other than MF)
Conclusions

- **Farmers** records useful for genetic evaluation
- **Weak points** of identification
  - Described the **symptoms** - not diagnosis
  - Different **interpretation** of symptoms
  - Preference of different **health aspects** (all farmers not reported all diagnoses)
  - Used different **terminology** (bad recognition → ↓ incidence of particular F&L)
- **Clear definition** of diagnosis  (ICAR Central Health Key + Claw Health Atlas)
- **Careful editing**  (e.g. determining the min. incidence per HY or per S)

**Actually:** finalising web application and data transfer

developing model for genetic evaluation

(preliminary results for health traits = ICAR, Paper No. 221)
Thanks are:
Farmers & Czech-Moravian Breeders Corporation for providing the data

Thank you for attention

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