Registration of health traits in Austria – Experience review

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Background

Improved animal health is gaining increasing importance worldwide, because of its effect on
- farm economy
- animal welfare
- food security

Health data so far only routinely collected and utilized by the Scandinavian Countries.

EU-Animal Health Strategie 2007-2013: „Prevention is better than cure“.

In Austria recording of diagnostic data and treatments is obligatory by law since 2002. Before project start, those data were neither standardized nor routinely collected and utilized.

Overview

- Background
- Methods and measures
- Results and discussion
  - Participation
  - Genetic evaluation
  - Herd management
- Review of experience
- Conclusions

Performance recording in Austria

23,676 herds with 390,031 cows
16.4 cows/herd

<table>
<thead>
<tr>
<th></th>
<th>Fleckvieh</th>
<th>Brown Swiss</th>
<th>Holstein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows (% of all HB-cows)</td>
<td>71</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Milk kg - HB all lact.</td>
<td>6,710</td>
<td>6,874</td>
<td>8,328</td>
</tr>
<tr>
<td>Fat %</td>
<td>4.14</td>
<td>4.11</td>
<td>4.1</td>
</tr>
<tr>
<td>Protein %</td>
<td>3.41</td>
<td>3.41</td>
<td>3.25</td>
</tr>
<tr>
<td>Number of calvings</td>
<td>3.91</td>
<td>3.73</td>
<td>3.47</td>
</tr>
<tr>
<td>Calving interval (days)</td>
<td>392</td>
<td>416</td>
<td>415</td>
</tr>
<tr>
<td>Somatic cell count (in 1000)</td>
<td>194</td>
<td>237</td>
<td>272</td>
</tr>
</tbody>
</table>

Within the total merit index no direct health traits included so far!
**Project “Health monitoring cattle”**

**Main project aims**

- System to record diagnostic data
- Improve health by breeding
- Improve health by herd management
- Breeding value estimation
- Health reports farmers
- Health reports veterinarians

**Target group:**

farms with performance recording – voluntary participation!

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**Project organisation**

- **Project partners:**
  - Animal Health Organisations
  - Chamber of Agriculture
  - Chamber of Veterinarians
  - Ministry of Agriculture, Forestry, Environment and Water management
  - Ministry of Health
  - University of Natural Resources and Applied Life Sciences
  - University of Veterinary Sciences
  - ZuchtData EDV-Dienstleistungen GmbH
- **Project executing organisation:**
  - Federation of Austrian Cattle Breeders (ZAR) with member organisations from breeding, performance recording and artificial insemination.
- **Project management:**
  - Committee with representatives of different groups.

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**New receipt for the application of drugs**

Published by the Ministry of Health in April 2006

**Recorded:**
- Identity of the animal
- Identity of the farm
- Number of the veterinarian
- Diagnoses and date of diagnoses from first treatments only

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**Project history - milestones**

From the idea to implementation

- May 05: Austrian wide project
- May 05 – Spring 06: Support of partners and elaboration of project including technical aspects
- Jun – Dec 06: Start of the project - information
- 2007: First health reports
- 2008: Annual health reports and educational programme
- 2009: First breeding values for health traits for Austrian Fleckvieh
- 2010: Implementation to the routine
Standardisation of diagnoses
Austrian wide key – published by the Ministry of Health in April 2006

Key only includes on-site findings by veterinarians but currently no laboratory results.

Recording of diagnostic data from the receipt to the data base (performance recording data base)

Promotional programme to increase electronic transmission introduced. Additional health information can be recorded directly by the farmer to the data base ("observations").

Participation in health monitoring in % (HM)
Total number of farms participating: 13,150 farms

February 2010

Health monitoring farms with recording of veterinary diagnoses (HMVDR)
Number of participating farms as well as number of farms with recording of diagnostic data is increasing.

February 2010
Development of participation

<table>
<thead>
<tr>
<th>Regions</th>
<th>Farms</th>
<th>HM farms %</th>
<th>HMVDR farms %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Feb.10</td>
<td>Feb.10</td>
<td>Feb.09</td>
</tr>
<tr>
<td>Burgenland</td>
<td>136</td>
<td>23</td>
<td>17</td>
</tr>
<tr>
<td>Carinthia</td>
<td>1,288</td>
<td>75</td>
<td>76</td>
</tr>
<tr>
<td>L. Austria</td>
<td>3,925</td>
<td>78</td>
<td>77</td>
</tr>
<tr>
<td>U. Austria</td>
<td>4,864</td>
<td>55</td>
<td>51</td>
</tr>
<tr>
<td>Salzburg</td>
<td>2,194</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>Styria</td>
<td>3,383</td>
<td>75</td>
<td>66</td>
</tr>
<tr>
<td>Tyrol</td>
<td>6,009</td>
<td>36</td>
<td>23</td>
</tr>
<tr>
<td>Vorarlberg</td>
<td>1,479</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Austria</td>
<td>23,278</td>
<td>54</td>
<td>48</td>
</tr>
</tbody>
</table>

Large regional differences – information and awareness is important! Opinion leaders have a very big influence on success or failure!

Genetic evaluation of health traits

- Research project in Austria: „Development of a breeding value estimation for health traits“
- Aim: Preparation of a routine genetic evaluation for health traits
- Trait complexes: Udder health, fertility, digestive diseases and feet and legs
- Genetic improvement!

Validation of data - precondition of reliable breeding values!

**Differentiation:**
Farms with low frequency and farms with incomplete health data recording.

**Criteria:**
- continuous data recording (farm/veterinarian)
- at least 0,1 first diagnosis per cow and year
- definition of the time under observation

**Austrian Fleckvieh (Simmental):** presently about 120,000 cows within breeding value estimation

Percentage of cows with at least one diagnosis

(Schwarzenbacher, 2009)
Breeding values for direct health traits were published in April 2009. Genetic differences existing.

Health reports for herd management

- Provision of health reports combining already existing data from performance recording with diagnostic data. Veterinarians have access to reports with consent of farmers at no cost.
- Daily reports after performance recording:
  - e.g. action lists
- Annual report: overview about health status of herd
- Special reports: concerning Animal Health Programmes
- Further improvements in preparation:
  - graphical overview
  - Future plan to include data from slaughtering houses, milk laboratories as well as hoof trimming.

Health reports available since beginning of 2007. Important to provide benefits already at an early stage.

Top-list fertility disorders

Presently mainly older bulls with breeding values for direct health traits in Austria!

Higher participation is required!

Breeding values for direct health traits: www.zar.at, www.fleckvieh.at

Annual health report – Udder health since 2008

Enabling the farmer to compare farm results to the previous year as well as to the average on district and province level.

Web based tool with daily updated annual reports for veterinarians.

Percentage of daughters with at least one diagnosis

5 worst 13,3% 5 best

First breeding values for direct health traits were published in April 2009. Genetic differences existing.
Education programme on health reports

- For the interpretation of the health reports a special training programme was set up.
- It was realized that too much information was provided where many farmers were lacking the knowledge to interpret and work with this data.
- In a participatory way each farmer elaborated his plan of action.
- 6,500 farmers participated.

Information and training is very important!

Project history - milestones
From the idea to implementation

<table>
<thead>
<tr>
<th>ZAR: Austrian wide project</th>
<th>May 05</th>
<th>May 05 – Spring 06</th>
<th>Jun – Dec 06</th>
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<th>2009</th>
<th>2010</th>
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<td>Start of the project - information</td>
<td>First health reports</td>
<td>Annual health reports and educational programme</td>
<td>First breeding values for health traits for Austrian Fleckvieh</td>
<td>Implementation to the routine</td>
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Implementation to the routine

**Aim:** partner organisations adopt project measures to the routine

**Present situation:**
- **Animal Health Programme Health Monitoring** officially decided by the Ministry of Health in March 2010: Information based on performance recording and health monitoring will be included in evaluation and prevention.
- **Breeding programme:** The Tyrolean Grey Association already decided in 2007 that registration of health traits is compulsory for its members. The Austrian Fleckvieh (Simmental) Federation adopted health traits to their breeding programme in April 2010.
- **Permanent working group** within the Federation of the Austrian Cattle Breeders (ZAR) with representatives of the different partner organisations will be established.
Important measures to our experience

- **Participative approach**: set up and implementation of the project has to be carried out with partners involved – project organisation!
- **Benefit for key players**: Motivation for support depends on expected benefits – working groups with e.g. vets to elaborate health reports.
- **Technical implementation with secured data quality**: sensible data – data security and data quality main argument by opponents.
- **Sustainable high quality data recording and validation**: establish trust in data quality – emphasis on validation.
- **Continuous information and motivation**: essential, more challenge than technical aspects.
- **Financing and economic aspects**: project participation has to be without additional costs for farmers and veterinarians. Effort comparable with recording of calving ease (0,7 first diagnoses/cow and year).
- **Legal frameworks**: continuous recording of health data on a high level of participation is a big challenge – legal frameworks are very valuable.

Conclusions

- 13,150 farms participating in Austria (54%) – differences between 1-79%.
- Time is ready to start to collect and utilize health data (effect on farm economy, food security,…).
- Topic also in other countries (e.g. Southern Germany has started similar project recently).
- Consideration of health traits has the chance of success, but it is a difficult project as it needs the support of the farmers, veterinarians and their organisations and representatives.
- Participatory approach and good cooperation precondition for success.
- Information and awareness are a challenge.
- Data security and data quality has to be a priority.
- Sustainable benefit for all partners involved is essential.

Acknowledgement

The Federation of Austrian Cattle Breeders thanks

- the Ministry of Agriculture, Forestry, Environment and Water management and the Ministry of Health as well as the Federal States for their financial support.
- the partner organisations for their good cooperation and their valuable advise.
- The colleagues from other countries for their advise and sharing of experiences.
Thank you for your attention!