Challenges and opportunities for animal welfare in organic and low-input dairy farming

C. Winckler, L. Tremetsberger, C. Leeb

University of Natural Resources and Life Sciences, Vienna
Department of Sustainable Agricultural Systems
Division of Livestock Sciences
Background

- High animal **health and welfare status** important aim in sustainable organic and low-input livestock farming
- Essential part of the overall *food quality concept*‘
- Generally expected to be positively associated with **more extensive housing and management** conditions
'Extensive' = good welfare?

Compliance with resources requirements = (at least) acceptable welfare states?

Welfare improvements in these farming systems possible?
Definitions of animal welfare

‘Biological functioning’

‘Feelings’

‘Naturalness’
Animal welfare potential of pasture-based systems

Opportunities to perform normal behaviours (e.g. grazing, exploration)

Fewer agonistic interactions

Lower metabolic load (?)

Lower risk of injuries, e.g. caused by flooring, equipment
Welfare issues in dairy production

,Extensive/pasture-based‘

- Lameness
- Heat stress
- Human-animal interactions
- Painful procedures

Hemsworth et al. 1995, AABS 42:161

,Intensive‘

- Production-related diseases (lameness, mastitis, metabolic disorders)
- Restriction of movement and behaviour
- Human-animal interactions
- Painful procedures

- Organic stock farming should respect high animal welfare standards and meet animals’ species-specific behavioural needs...
- Husbandry practices… shall ensure that the developmental, physiological and ethological needs of animals are met.
- The livestock shall have permanent access to open air, preferably pasture…; tethering shall be prohibited.
- Any suffering, including mutilation, shall be kept to a minimum.

Resource based measures not necessarily appropriate indicators

Are ‘Freedom Food’ dairy farms better for animal welfare than conventional ones?

- Freedom Food > conventional:
  ↓ mastitis, ↓ non-hock injuries, ↑ cleanliness, ↑ BCS

- Freedom Food = conventional:
  sudden death, bloated rumen, hair loss

- Freedom Food < conventional:
  ↑ hock injuries, ↑ lameness, ↑ difficulties getting up

Main et al. 2003, Vet. Rec. 153:227
Lameness a relevant problem in dairy cattle, irrespective of farming system

- Farms above intervention level (>75% of experts think that measures should be taken)

- % of cows lame

- conventional Freedom Food organic
On-farm welfare assessment

- Protocols with a strong focus on animal-based (welfare outcome) measures have been developed, e.g.
  - Bristol Welfare Assurance Protocol (BWAP)
  - Welfare Quality®
12 criteria of animal welfare in WQ®

Good feeding
- Hunger
- Thirst
- Expressing social behaviour
- Expressing other behaviour

Good housing
- Thermal comfort
- Comfort around resting
- Ease of movement
- No painful management procedures

Good health
- No disease
- No injuries
- Positive emotional state
- Good human-animal relationship

Appropriate behaviour
- Thirst
- Hunger
- Good human-animal relationship
- Good health

C. Winckler | EAAP, August 28th, 2012
COREOrganic ANIPLAN

- 111 farms in six countries, average herd size 57 cows

- Application of the Welfare Quality® protocol
ANIPLAN results

- Large variation between farms
- Main areas of concern:
  Lameness
  Alterations of the integument
  Poor body condition (2 countries)
  Agonistic social behaviours (2 countries)
  Human-animal relationship (5 countries)
Selected welfare issues

Percentage of lean animals (%)

<table>
<thead>
<tr>
<th></th>
<th>AT</th>
<th>CH</th>
<th>DE</th>
<th>DK</th>
<th>NL</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>median</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>range</td>
<td>0-50</td>
<td>0-36</td>
<td>0-64</td>
<td>0-8</td>
<td>0-20</td>
<td>0-37</td>
</tr>
</tbody>
</table>

0% OK, 20% action recommended, 40% action required, 60% unacceptable, 80% unacceptable

C. Winckler  |  EAAP, August 28th, 2012
Selected welfare issues

Incidence of agonistic social behaviours (events/cow*h)

<table>
<thead>
<tr>
<th></th>
<th>AT</th>
<th>CH</th>
<th>DE</th>
<th>DK</th>
<th>NL</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>median</td>
<td>1.1</td>
<td>0.9</td>
<td>-</td>
<td>0.7</td>
<td>-</td>
<td>0.4</td>
</tr>
<tr>
<td>range</td>
<td>0.1- 3.7</td>
<td>0.2-3.5</td>
<td>-</td>
<td>0.2- 2.6</td>
<td>-</td>
<td>0.1- 0.8</td>
</tr>
</tbody>
</table>

- OK
- action recommended
- action required
- unacceptable

C. Winckler | EAAP, August 28th, 2012
 'Extensive‘ = good welfare?

 Compliance with resources requirements = (at least) acceptable welfare states?

 Welfare improvements in these farming systems possible?
Welfare improvement

Implementation = translating knowledge into action by inducing change in behaviour of humans through

- **Education** (awareness of problems and potential solutions)
- **Encouragement**
- **Enforcement**

-> Herd health and welfare planning

Main & Whay 2009
Health and welfare planning principles

Management tool to identify and control health and welfare problems on a farm

1. Continuous development and improvement
   - Identifying current status and risks
   - Target setting and implementation
   - Repeated assessment, evaluation

2. Farm specific

3. Farmer ownership

4. External person(s) and expertise

5. Written document

6. Acknowledge positive aspects
Lameness intervention study

40 organic dairy farms

- herd size > 30 cows (German Holstein)
- Cubicle housing ≥ 1 year
- Participation in milk recording
- Conversion to organic farming ≥ 2 years

<table>
<thead>
<tr>
<th>Year</th>
<th>Ø cows</th>
<th>Ø yield (kg)</th>
<th>Ø ha</th>
<th>Ø conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>61</td>
<td>6,619</td>
<td>104</td>
<td>1992</td>
</tr>
</tbody>
</table>
Study design

Assessment, weak-point analysis

21 intervention farms: discussion of measures, training, individual farmer-owned lameness control plan

19 control farms

Assessment and evaluation of the plan

Assessment

1st visit
Winter 04/05

2nd visit

4th visit
Winter 05/06

10th visit
Winter 08/09
# Intervention measures

<table>
<thead>
<tr>
<th>Examples of measures</th>
<th>No. of farms that implemented measures out of farms that had been recommended measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular claw trimming</td>
<td>10/13</td>
</tr>
<tr>
<td>Cubicles (bedding, maintenance, design)</td>
<td>11/20</td>
</tr>
<tr>
<td>Cleaning of floors in the alleys</td>
<td>12/13</td>
</tr>
<tr>
<td>Grip of floors in the alleys</td>
<td>7/10</td>
</tr>
</tbody>
</table>
Lameness prevalence

March & Brinkmann 2011
Reduction in lameness prevalence

<table>
<thead>
<tr>
<th>Year</th>
<th>Change in % of lame cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>-16</td>
</tr>
<tr>
<td>Year 2</td>
<td>-14</td>
</tr>
<tr>
<td>Year 3</td>
<td>-12</td>
</tr>
<tr>
<td>Year 4</td>
<td>-10</td>
</tr>
<tr>
<td>Year 5</td>
<td>-8</td>
</tr>
<tr>
<td>Year 6</td>
<td>-6</td>
</tr>
<tr>
<td>Year 7</td>
<td>-4</td>
</tr>
<tr>
<td>Year 8</td>
<td>-2</td>
</tr>
<tr>
<td>Year 9</td>
<td>0</td>
</tr>
</tbody>
</table>

- Intervention: p<0.05, group*year: n.s.
- Control: 

March & Brinkmann 2011
COREOrganic ANIPLAN

- 111 farms in six countries, average herd size 57 cows

- Animal health and welfare planning according to the principles
  - by farmer field schools
  - one-to-one advice
Udder health (Somatic cell score)

GLM/ repeated measures: Pyear = 0.025 (Y0 > Y1)

Ivemeyer et al. 2011
Udder treatments with antibiotics

GLM/ repeated measures: Pyear = 0.004 (Y0 > Y1)

Ivemeyer et al. 2011
Conclusions

- Low-input/organic dairy farming systems have a high potential to achieve good welfare states but may bear substantial welfare risks
- Welfare assessment/monitoring using animal-based measures become increasingly important
- Effective welfare improvement strategies targeting farm-specific needs are available, but need further refinement
Acknowledgements

- FP7/SOLID ([www.solidairy.eu](http://www.solidairy.eu))
- COREOrganic ANIPLAN
- Federal Organic Farming Scheme, Germany

Questions?