Introduction to Welfare Quality and animal based welfare outcomes

Dr. Antonio Velarde and Dr. Antoni Dalmau
Animal Welfare
IRTA

The centers

Research lines

1. Animal Welfare at slaughter
3. Development of animal welfare assessment systems on farm and at slaughter.
4. Evaluation of alternatives to painful management procedures (dehorning and castration).
5. Risk assessment on animal welfare
EU integrated project
• 44 partners
• 13 European countries
• 4 Latin American countries

To integrate farm animal welfare into the food chain.

Welfare information system

Management
Farm
Housing
Animal Welfare
Welfare Assessment system

Improvement strategy
Practical
Scientifically valid
Meeting societal requirements

Product Information
Clear
Understandable

What is animal welfare?

The 5 freedoms

FAWC (1992)

Represent ideal states rather than actual standards
Multidimensional assessment

4 Principles

- Absence of prolonged hunger
- Absence of prolonged thirst
- Comfort around resting
- Thermal comfort
- Easy of movement
- No injuries
- No diseases
- No painful management procedures
- Expression of other behaviour
- Expression of social behaviour
- Good human animal relationship
- Positive emotional state

12 Criteria

Animal welfare measures

INPUTS

<table>
<thead>
<tr>
<th>RESOURCE-BASED PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
</tr>
<tr>
<td>Feeding, drinking space</td>
</tr>
<tr>
<td>Temperature</td>
</tr>
<tr>
<td>Type of floor, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MANAGEMENT-BASED PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euthanasia criteria</td>
</tr>
<tr>
<td>Castration procedures</td>
</tr>
<tr>
<td>Hygiene</td>
</tr>
<tr>
<td>Management of sick animals, etc.</td>
</tr>
</tbody>
</table>

OUTCOMES

<table>
<thead>
<tr>
<th>ANIMAL-BASED PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wounds</td>
</tr>
<tr>
<td>Tail biting</td>
</tr>
<tr>
<td>Body Condition</td>
</tr>
<tr>
<td>Social behaviours</td>
</tr>
<tr>
<td>Bursitis</td>
</tr>
<tr>
<td>Panting; Shivering</td>
</tr>
</tbody>
</table>
Inputs (Quality of living)
- High practicability and repeatability
- Individual differences (genetic, experience)
- Difficult to compare between systems

Outcomes (Quality of life)
- Physiological, health and behavioral measures
- Reflection of the actual welfare state
- Comparison between systems
- Transparent to stakeholders
- More difficult to assess

Inputs vs. Outputs

Inputs (Quality of living)
- When no animal based measure is available
- To diagnose causes of poor welfare
- To advice on ways to improve animal welfare

Outcomes (Quality of life)

Measures to be preferred to assess animal welfare state

Animal welfare measures

Properties:
- Validity:
  - Meaningful in terms of providing information on the welfare of an animal or a group of animals
  - Concurrent validity (comparison with validated measures)
  - Predictive validity (effects of treatments)
  - Consensus between experts
General principles:

- **Reliability**
  - Inter-observer
    - Objective: inter-observers correlation > 0.65
  - Intra-observer
  - Test-retest

- **Feasibility**
  - Limited amounts of animal handling, time, cost, skills

Construction of the protocol:

- Scope
- Basic principles
- Collection of data
- Calculation of scores

AW monitoring system:

- **PIGS**
  - Sows and piglets (breeding herd)
  - Growing pigs (finisher herd)
  - Pigs at slaughter

- **CATTLE**
  - Dairy cows
  - Beef cattle (+ welfare at slaughter)
  - Veal calves [dairy calves & heifers]

- **POULTRY**
  - Meat chicken
  - Lying hen
### WO Assessment Protocol for Pigs

#### 12 Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Absence of prolonged hunger</td>
<td>Body condition score</td>
</tr>
<tr>
<td>2. Absence of prolonged thirst</td>
<td>Water supply</td>
</tr>
<tr>
<td>3. Comfort around feeding</td>
<td>Bureau, Mucus on the body</td>
</tr>
<tr>
<td>4. Thermal Comfort</td>
<td>Shivering, Panting, Shuddering</td>
</tr>
<tr>
<td>5. Ease of movement</td>
<td>Temperature</td>
</tr>
<tr>
<td>6. Absence of injuries</td>
<td>Space allowance</td>
</tr>
<tr>
<td>7. Absence of disease</td>
<td>Wounds, Lamekess, Tail biting</td>
</tr>
<tr>
<td>8. Absence of pain induced by management procedures</td>
<td>Temperature, enteric problems, Skin condition, hernias, Management of</td>
</tr>
<tr>
<td></td>
<td>Sows, lameness, Tail docking</td>
</tr>
<tr>
<td>9. Expression of social behaviours</td>
<td>Human-Animal relationship test</td>
</tr>
<tr>
<td>10. Expression of other behaviours</td>
<td>Exploratory Behaviour</td>
</tr>
<tr>
<td>11. Good Human-Animal relationship</td>
<td>Positive &amp; Negative social behaviours</td>
</tr>
<tr>
<td>12. Positive emotional state</td>
<td>Human-Animal relationship test</td>
</tr>
</tbody>
</table>

### Animal-based Measures

- **Sows:**
  - 30 pregnant sows (early, mid- & late pregnancy)
  - 10 lactating sows and their litters

### Scale

**INDIVIDUAL level**

**PEN level**

**Short Scale**

0 1 2

**Good welfare**

**Poor welfare**
The protocols are applicable in a wide range of animal units, be they extensive or intensive.

The protocols should only be applied to farming systems which operate within the applicable legal framework of the country.

The protocols do not replace or supersede any existing farm assurance or legal standards.

They provide an additional tool for the assessment of animal welfare using predominantly animal-based measures and as such can add valuable additional information to existing inspection programs.

Scope

- The protocols are applicable in a wide range of animal units, be they extensive or intensive.
- The protocols should only be applied to farming systems which operate within the applicable legal framework of the country.
- The protocols do not replace or supersede any existing farm assurance or legal standards.
- They provide an additional tool for the assessment of animal welfare using predominantly animal-based measures and as such can add valuable additional information to existing inspection programs.

Welfare implementation

1. Research tool
2. To provide advice and support to farmer
3. Product information system

Potential users

- Inspectors
- Advisors
- Researchers

4 Principles

- Good feeding
- Good housing
- Good health
- Appropriate behaviour

12 Welfare criteria

- Absence of prolonged hunger
- Absence of prolonged thirst
- Comfort around resting
- Thermal comfort
- Ease of movement
- Absence of injuries
- Absence of diseases
- Absence of pain induced by management procedures
- Expression of social behaviour
- Expression of other behaviour
- Good human-animal relationship
- Positive emotional state

Botreau et al., 2007
Potential users:
- Inspectors
- Advisors
- Researchers

Training for professionals:
- Capacity to carry out the assessment in a robust, repeatable, and valid way.
- To satisfy producers and consumers.

- Scope
- Basic principles
- Collection of data
- Calculation of scores

www.welfarequalitynetwork.net

- Training and validation in the methods and protocols.

Next step:
Training in the use of the tools in a uniform and reliable way

1. Information of the measures
   - Scope
   - Sampling size and sampling strategy
   - Method description (order of the measures)
   - Classification (scoring system)
Training of observers

Training workshop
- Evaluation with photos or video clips of each measure.
- Discussion marked differences with gold standard
- Discussion of the protocol
- Visit to farm and abattoirs for training by direct observation. (explanation of the golden standard)
- Evaluation of the measures by direct observation.
- Statistical evaluation of on-farm data.

Thank you for your attention

Antonio.Velande@irta.es