ISAH: Tartu, June 2007
New Trends in Animal Welfare

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Emeritus Professor,
University of Bristol
ANIMAL WELFARE

• What is it to them?
  – What is meant be welfare, wellbeing, sentience, stress, suffering?

• What is it to us?
  – Ethics of animal welfare

• What should we do about it?
  – Awareness, education, promotion
What is animal welfare?
-questions posed by ‘welfare scientists’

• Is the animal living a normal life?
• Is the animal fit and healthy?
• How does it feel?
The alternative and insufficient questions posed by ‘welfare scientists’

- Is the animal living a normal life?
  - Ethology, sociobiology
- Is the animal fit and healthy?
  - Veterinary science
- How does it feel?
  - Psychology, motivation analysis
So what then is animal welfare?

• It is the physical and mental state of a sentient animal as it seeks to cope with environmental challenge

• It thus covers the full spectrum
  • satisfaction to suffering
“Well-being”

‘Fit and happy’
[wherever they may be]
• sustained physical and mental health
  • absence of disease
  • absence of suffering (e.g. pain, fear, exhaustion)
• feeling good (‘happy’)
  • comfort, companionship, security
What is animal sentience?

• ‘Feelings that matter’
  – Perception of environmental stimuli
  – Interpretation: emotion & cognition
  – Motivation:
    – a measure of how much it matters
  – Measured response
  – Assess effectiveness of outcome
  – Modify mood and understanding in light of experience
A Sentient View of the World
Animal Sentience

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  – Perception of environmental stimuli
  – Interpretation: emotion & cognition
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    – a measure of how much it matters
  – Measured response
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Stress 1: alarm then full adaptation

**Response**

**Fitness**

**ALARM**

**ADAPTATION**

Full adaptation with no loss of fitness

100%

50%

%
Stress 2:
alarm and incomplete adaptation

Incomplete adaptation with loss of fitness leading eventually to exhaustion.
Stress and suffering

- Suffering occurs when an animal cannot cope (or has difficulty in coping) with unpleasant feelings:
  - because the sensations are too intense, too complex or too prolonged
  - because it is unable to respond in a way that will effectively improve how it feels
Suffering: failure to cope

- Exhaustion
- Injury and chronic pain
- Malaise - feeling ill
- Chronic anxiety/apathy
Fear & Anxiety

- Learned threat
  - e.g. anticipated pain

- Innate threat
  - e.g. predators, isolation

- Novelty

- Action
  - effective
  - ineffective

- Habitation

- Learning

- Anxiety
  - Depression
Pain

‘How do we know it matters?’

• Immediate reaction
  – alarm, escape- *No*

• Modified behaviour
  – rest and locomotor changes- *maybe not*
  – aversion/learned avoidance - *possibly*
  – reduced positive behaviour (e.g. grooming) - *probably*

• Altered Mood
  – apathy, reduced appetite - *probably*

• Response to analgesics
  – externally administered - *not necessarily*
  – self selected - *Yes*
Animal Sentience
Why does it matter to us?

• Suffering and pleasure are defined by the capacity to feel, not the capacity to think
  – chimpanzee = horse = rat
• Sentient animals learn by experience as they attempt to cope with life. If they fail, they suffer
  – suffering is a learnt experience
# Relief of suffering

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Medical</th>
<th>Nursing</th>
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<tbody>
<tr>
<td>Fever</td>
<td>Antipyretics</td>
<td>Thermal comfort</td>
</tr>
<tr>
<td>Pain</td>
<td>Analgesics</td>
<td>Physical comfort</td>
</tr>
<tr>
<td></td>
<td>NSAIDs</td>
<td>Rest</td>
</tr>
<tr>
<td>Inappetence</td>
<td>Tonics</td>
<td>‘Treats’</td>
</tr>
<tr>
<td>Fluid loss</td>
<td>i/v Rehydration</td>
<td>Oral rehydration</td>
</tr>
<tr>
<td>Mental distress</td>
<td>Unnecessary?</td>
<td>Reduce social stress</td>
</tr>
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<td></td>
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<td>TLC</td>
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</table>
# The Ethics of Animal Welfare

<table>
<thead>
<tr>
<th></th>
<th>Wellbeing</th>
<th>Autonomy</th>
<th>Justice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human society</td>
<td>Wholesome, cheap food</td>
<td>Freedom of choice</td>
<td>Welfare legislation</td>
</tr>
<tr>
<td>Producers</td>
<td>A fair living</td>
<td>Free competition</td>
<td>Good husbandry</td>
</tr>
<tr>
<td>Farm animals</td>
<td>Wellbeing at all times</td>
<td>Environmental enrichment</td>
<td>“A life worth living”</td>
</tr>
<tr>
<td>Living environment</td>
<td>Conservation Sustainability</td>
<td>Biodiversity</td>
<td>Respect for envt. &amp; stewards</td>
</tr>
</tbody>
</table>
Right action: *What should we do?*

- Awareness
- Animal welfare science and education
- Animal welfare assessment in practice
- Welfare-based quality assurance
- The role of the veterinarian
What is welfare science?
A Curriculum for Animal Welfare

• Principles of husbandry and welfare
• Animal welfare science
• Animal welfare Law and Regulations
• Animal welfare in clinical practice
Principles of husbandry and welfare

- Definitions of welfare, sentience and suffering
- The “Five Freedoms”
- Good husbandry: management of farm and companion animals
- Ethics of animal welfare
Animal Welfare Science (y2)

- Sentience and suffering
- Physiology of pain, stress and adaptation
- Ethology
  - normal behaviour in relation to environment
- Psychology
  - perception, emotion, cognition and motivation
- Abnormal behaviour
  - causes and management of anxiety, stereotypies etc.
- The human-animal bond.
Animal Welfare in Clinical Practice

• Practical assessment of husbandry and welfare
  – animal-based welfare monitoring
• Recognition of animal abuse
  – unnecessary suffering
• Herd health and welfare
  – on-farm strategic planning
  – welfare-based quality assurance
- so Welfare Science is part of Veterinary Science and vice versa.

- thus an understanding of animal welfare state (as perceived by the animal) is an essential prerequisite for proper professional veterinary care.
**Why do vets. need Welfare Science?**

- because animals need vets. who understand not only what keeps them healthy but also how they feel as they seek to meet their physiological and behavioural needs.
What are?

• Animal welfare and wellbeing
• Sentience, stress and suffering
• Animal welfare science and education
• Animal welfare assessment in practice
• Welfare-based quality assurance
• The role of the veterinarian
Welfare assessment and assurance

• How is it for the dairy cow?
Freedoms and Provisions

- **Freedom from hunger and thirst:**
  - access to fresh water and a diet to maintain full health and vigour
- **Freedom from discomfort:**
  - a suitable environment: e.g. shelter and a comfortable resting place
- **Freedom from pain, injury and disease:**
  - prevention and/or rapid diagnosis and treatment
- **Freedom from fear and stress:**
  - ensure conditions which avoid mental suffering
- **Freedom to express normal behaviour:**
  - ensure sufficient space, proper facilities and social contact
Possible welfare problems for the Dairy Cow

- Hunger, malnutrition or metabolic disease
  - improper feeding for phenotype
- Chronic discomfort
  - cubicle design, loss of condition
- Pain from mastitis or lameness
- Increased susceptibility to infection
- Anxiety/insecurity
- Metabolic or physical exhaustion
Heritabilities, genetic (below) and phenotypic correlations

<table>
<thead>
<tr>
<th>Trait</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield (kg)</td>
<td>0.33</td>
<td>0.20</td>
<td>-0.01</td>
<td>0.04</td>
</tr>
<tr>
<td>C.Interval (d)</td>
<td>0.39</td>
<td><strong>0.025</strong></td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Mastitis</td>
<td>0.26</td>
<td>0.11</td>
<td><strong>0.057</strong></td>
<td>0.05</td>
</tr>
<tr>
<td>Lameness</td>
<td>0.17</td>
<td>0.20</td>
<td>0.33</td>
<td><strong>0.036</strong></td>
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</tbody>
</table>
Animal-based indices of welfare observations & records

• Fitness
  – Nutrition: body condition, growth, fertility
  – Environment: skin & coat condition, injuries
  – Health records, prevalence of (e.g.) lameness

• Feelings
  – Chronic discomfort
  – Pain from (e.g.) lameness, injury
  – Fear & stress from (e.g.) disturbed behaviour
## Results Profile of 53 Dairy Farms

**Measure** | **Source of Information** | **Unit of Measure** | **Score Categories**<sup>(20% in each banding)</sup> | **Dr H Whay**
---|---|---|---|---

<table>
<thead>
<tr>
<th>Health &amp; Production</th>
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<tbody>
<tr>
<td>Nutrition</td>
</tr>
<tr>
<td>Annual Ave. milk yield</td>
</tr>
<tr>
<td>Thin cows (BCS &lt;2)</td>
</tr>
<tr>
<td>Fat cows (BCS &gt;3.5)</td>
</tr>
<tr>
<td>Bloated rumen&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hollow rumen&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Milk fever cases</td>
</tr>
<tr>
<td>Other disease&lt;sup&gt;2&lt;/sup&gt;</td>
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<table>
<thead>
<tr>
<th>Reproduction</th>
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<tbody>
<tr>
<td>Conception rate to 1&lt;sup&gt;st&lt;/sup&gt; Service</td>
</tr>
<tr>
<td>Assisted calving cases</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Mastitis</th>
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<tbody>
<tr>
<td>Mastitis cases</td>
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<table>
<thead>
<tr>
<th>Lameness</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of lame cows</td>
</tr>
<tr>
<td>Lameness cases</td>
</tr>
<tr>
<td>Lameness cases</td>
</tr>
<tr>
<td>Claw overgrowth&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Poor claw conformation&lt;sup&gt;4&lt;/sup&gt;</td>
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</tbody>
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<table>
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<tr>
<th>Non-specific Illness / Mortality</th>
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<tbody>
<tr>
<td>Dull / Obviously sick</td>
</tr>
<tr>
<td>Sudden death / casualty</td>
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</table>
### Example: % requiring action - intervention level

#### Thin cows (% with BCS<2)

<table>
<thead>
<tr>
<th>Best 20%</th>
<th>Worst 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 5.6 6.3 11.1 13.3</td>
<td>21.4 21.7 31.3 33.3 61.1</td>
</tr>
</tbody>
</table>

#### Mastitis cases

<table>
<thead>
<tr>
<th>Best 20%</th>
<th>Worst 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8 13.3 14.8 18.9 20</td>
<td>32.7 33.0 46.7 46.8 89.1</td>
</tr>
</tbody>
</table>

#### Lame cows (%)

<table>
<thead>
<tr>
<th>Best 20%</th>
<th>Worst 20%</th>
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</thead>
<tbody>
<tr>
<td>0 14 14</td>
<td>18 20 23.5 24 29.6 29.8 50</td>
</tr>
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</table>

#### Swollen hock (%)

<table>
<thead>
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<th>Best 20%</th>
<th>Worst 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 10.7 11.1</td>
<td>28.3 29.4 36.1 37.5 68.2 70 96.7</td>
</tr>
</tbody>
</table>
Failures of Provision

- Inadequate nutrition for phenotype
  - infertility, metabolic disorders
- Inadequate environment for phenotype
  - mastitis, lameness
- Phenotype ‘unfit for purpose’
  - premature culling
What are?

- Animal welfare and wellbeing
- Sentience, stress and suffering
- Animal welfare science and education
- Animal welfare assessment in practice
- Welfare-based quality assurance
- The role of the veterinarian
Welfare-based Quality Assurance

“The Virtuous Bicycle”

Public

Promote

Assure

Public response

SET STANDARDS

Producers

Self-assessment

Review

Monitor

Action

Improve
The ‘Good Shepherd’ Brand

- Guarantees
  - responsible land use
  - biosecurity
  - animal welfare

- Does *not* claim
  - tastier food
  - healthier food
“Our Constant Endeavour”
The Duty of the Profession

• Professional ability
  – to assess welfare and recognise suffering in a sentient animal or population of animals
  – to identify and remedy failures of provision

• Humanity
  – to respect the needs of animals and their owners

• Courage
  – to act according to that which is right, not simply that which is regulated