Animal Welfare:
Science, values and action

John Webster
University of Bristol, UK
Emeritus
What is animal welfare?

- Human perceptions relating to our treatment of animals (care-cruelty spectrum) –*our concerns*
- Animal perception of their own physical and emotional state
  - *Their concerns*
Human societies recognise the need to promote the welfare of animals “in our care” - more or less
The welfare of a sentient animal is defined by its individual perception of its physical and emotional state.

This is independent of:
- Where it lives
- The culture and economic state of its owners/handlers
- “What we think it’s for”
Science and values

- We need science to improve our understanding of the physical and emotional factors that determine the welfare of a sentient animal.
- BUT science never will (and never should) be the sole foundation for our attitudes and actions with regard to the animals in our dominion.
- The responsibility of the Animal Welfare scientist is not just to seek the truth but also to guide public opinion towards solutions that the animals themselves would favour.
What is animal welfare science?
Priorities in Animal Welfare Science

- Current knowledge and understanding
  - Animal sentience
  - Elements of animal welfare (freedoms/domains)
  - Elements of good husbandry
  - Major risks to animal welfare

- New science
  - Mind – behaviour, cognition, emotion
  - Body – pain, suffering and lasting harm
  - Genetics, environment, health and welfare
Animal Sentience

- “Feelings that matter”
Origins of behaviour in a sentient animal

- Perception of environmental stimuli
  - External: “friends and foes”, novelty
  - Internal: hunger, cold

- Interpretation of stimuli
  - Feeling: positive, negative, curious, indifferent
  - Cognition: learning of actions and consequences

- Motivation to behaviour
  - Maintain, or favourably adjust emotional state (if necessary)

- Measured response
  - Seek, avoid, ignore
Actions and consequences in a sentient animal

- Perception and interpretation
- Motivation
- Behaviour
- Review of behaviour
  - How do I feel now?
  - How well did I cope?
- Consequences of review
  - Positive: habituation, pleasurable anticipation
  - Negative: anxiety, apathy, learned helplessness

Sentient animals do not live only in the present
Stress, Adaptation & Suffering

- Welfare depends on the ability of an animal to cope with environmental challenge/stressor
- Adaptation/habituation occurs when the animal learns that it can cope
- 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 denied the resources and opportunity to respond in a way that will effectively improve how it feels
Animal Sentience
Why does it matter to us?

- Suffering and pleasure are defined by the capacity to feel, not the capacity to think
  - chimpanzee = dog = rat
- Sentient animals learn by experience as they attempt to cope with life. If they fail, they suffer
  - suffering is a learnt experience
The Four Freedoms
(USA, Roosevelt 1941)

- Freedom of speech
- Freedom of worship
- Freedom from want
- Freedom from fear
The original five freedoms for intensively housed farm animals, (Brambell 1965)

Freedom to:
- Stand up
- Lie down
- Turn round
- Stretch the limbs
- Groom all over
The Five Freedoms and Provisions (FAWC 1993)

- **Freedom from thirst, hunger and malnutrition**
  - By ready access to a diet to maintain full health and vigour

- **Freedom from discomfort**
  - By providing a suitable environment including shelter and a comfortable resting area

- **Freedom from pain, injury and disease**
  - By prevention or rapid diagnosis and treatment

- **Freedom from fear and distress**
  - By providing sufficient space, proper facilities and the company of the animal’s own kind.

- **Freedom to express normal behaviour**
  - By ensuring conditions which avoid mental suffering.
<table>
<thead>
<tr>
<th>Five Freedoms</th>
<th>Welfare principles (WQ)</th>
<th>Five domains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunger and thirst</td>
<td>Good feeding</td>
<td>Food &amp; water deprivation</td>
</tr>
<tr>
<td>Discomfort</td>
<td>Good housing</td>
<td>Environmental challenge</td>
</tr>
<tr>
<td>Pain, injury and disease</td>
<td>Good health</td>
<td>Disease and injury</td>
</tr>
<tr>
<td>Fear and stress</td>
<td>Appropriate behaviour</td>
<td>Behavioural restriction</td>
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<tr>
<td>Normal behaviour</td>
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<td>Mental state</td>
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</table>
The FAWC Five Freedoms: *Strengths and weaknesses?*

- **Strengths**
  - Comprehensive
  - Identify hazards, risks and control points
  - Can be used to structure welfare assessments at individual, farm or industry level

- **Weaknesses**
  - “Impossibly idealistic paradigms”?
  - Snap shots that fail to account for long term problems (e.g. exhaustion, learned helplessness)
The Five Freedoms revisited

- Freedom from hunger and thirst
- Freedom from discomfort
- Freedom from pain, injury and disease
- Freedom from fear and stress
- Freedom of choice
Hunger: Problems & Solutions

<table>
<thead>
<tr>
<th></th>
<th>Problems</th>
<th>Solutions</th>
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<tbody>
<tr>
<td>Dry sows</td>
<td>Frustrated foraging</td>
<td>Create foraging opportunities</td>
</tr>
<tr>
<td>Stabled horses</td>
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<tr>
<td>Dairy cows</td>
<td>Metabolic hunger</td>
<td>Improve nutritive value</td>
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<td></td>
<td>“Full up”</td>
<td>Optimise digestibility</td>
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<tr>
<td>Broiler breeders</td>
<td>Abnormal appetite</td>
<td>Decrease nutritive value</td>
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<td></td>
<td></td>
<td>Create foraging opportunities</td>
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<tr>
<td>Out-wintered sheep &amp; cattle</td>
<td>Metabolic hunger</td>
<td>Nutrient supplements</td>
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<td></td>
<td>Frustrated foraging</td>
<td>Create foraging opportunities</td>
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</tbody>
</table>
Pain

‘How do we know it matters?’

- Immediate reaction
  - alarm, escape- *No*
- Modified behaviour
  - rest and locomotor changes- *maybe not*
  - learned avoidance - *possibly*
- Altered Mood
  - Apathy; reduced appetite, grooming – *probably*
- Response to analgesics
  - externally administered - *not necessarily*
  - self selected - *Yes*
Main welfare problems: intensive systems

<table>
<thead>
<tr>
<th>Hazards</th>
<th>Pigs</th>
<th>Poultry</th>
<th>Dairy Cattle (including calves)</th>
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</thead>
<tbody>
<tr>
<td>Feeding</td>
<td>Post weaning enteritis*</td>
<td>Lameness (Br)</td>
<td>Infertility*, ketosis</td>
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<td></td>
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<td></td>
<td>Rumen acidosis</td>
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<td></td>
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<td></td>
<td>Anaemia, ulcers (veal)*</td>
</tr>
<tr>
<td>Housing</td>
<td>Enzootic pneumonia</td>
<td>Lameness (Br)</td>
<td>Lameness, mastitis</td>
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<td></td>
<td>Stereotypies</td>
<td>Frustration (LH)</td>
<td>Abnormal behaviour (veal)*</td>
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<td></td>
<td>Aggression, tail biting, Lameness</td>
<td>Bone fractures (LH)</td>
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<td>Feather pecking (LH)</td>
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<tr>
<td>Breeding</td>
<td>Lameness (sows)</td>
<td>Lameness (Br)*</td>
<td>Infertility*, mastitis, Lameness</td>
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<td></td>
<td></td>
<td>Bone fractures (LH)*</td>
<td>Exhaustion</td>
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<td></td>
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<td>Aggression (LH)</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td>Feather pecking (LH)?</td>
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<tr>
<td>Management</td>
<td>Aggression</td>
<td></td>
<td>Lameness*</td>
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<td></td>
<td>Pain following mutilations</td>
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## Welfare problems: extensive systems

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<th>Ruminants</th>
<th>Poultry</th>
<th>Pigs</th>
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</thead>
<tbody>
<tr>
<td>Feeding</td>
<td>Hunger*</td>
<td>Predation*</td>
<td>Thermal stress</td>
</tr>
<tr>
<td></td>
<td>Infertility</td>
<td>Parasites*, infection</td>
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<td></td>
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<td>Parasites*, infection</td>
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<td></td>
<td></td>
<td>Aggression, fear</td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>Parasites*, infection</td>
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<td>Management</td>
<td></td>
<td></td>
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<tr>
<td>Breeding</td>
<td>Wrong phenotype</td>
<td>Wrong phenotype</td>
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Priorities in new welfare science

- **Mind**
  - Motivational basis of behaviour
  - Emotional indices of suffering and pleasure
  - Cognition?
  - Neurobiology???

- **Body**
  - Relief of pain
  - Genetics of resistance to production diseases
Animal Welfare : Values

- Ethics
  - Top-down and bottom-up
- Economics
  - Use and “non-use” values
- Politics
  - Laws and regulations
  - Public opinion: “politics by other means”
Ethical theories

- “Top-down” ethics
  - Contractarianism, utilitarianism, animal rights

- “Bottom-up” ethics
  - First identify the issues and individuals concerned
  - Step-by-step analysis according to moral principles
    - Beneficence/wellbeing, autonomy, justice

- Our ethical arguments are of no concern to the animals: it is what we do that counts.
# Ethical matrix: farm animal husbandry

<table>
<thead>
<tr>
<th>Moral agents</th>
<th>Wellbeing</th>
<th>Autonomy</th>
<th>Justice</th>
</tr>
</thead>
</table>
| Human society | Wholesome, affordable food  
Access to countryside  
Financial reward  
Pride in work | Freedom of choice  
Free competition | Fair food pricing  
Legislation & incentives for good husbandry  
Fair trade  
Good husbandry |

<table>
<thead>
<tr>
<th>Moral patients</th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| Farm animals   | Good, humane husbandry  
Conservation, sustainability | Environmental enrichment, Choice  
Biodiversity  
‘Live and let live’ | ‘A life worth living’  
Respect for both environment and stewards |

<table>
<thead>
<tr>
<th>The living environment</th>
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</table>
### Ethical matrix: Use of animals in scientific procedures

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<tr>
<th>Category</th>
<th>Wellbeing</th>
<th>Autonomy</th>
<th>Justice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human society</td>
<td>Health &amp; Safety</td>
<td>Freedom of choice</td>
<td>Compassion for animals</td>
</tr>
<tr>
<td>Regulators</td>
<td>Responsibility to society and animals</td>
<td>Open to new developments</td>
<td>Respect for AW in legislation, codes of practice</td>
</tr>
<tr>
<td>Operators</td>
<td>Sympathetic regulation of procedures</td>
<td>Open to new developments</td>
<td>Compassionate interpretation of regs. ‘Three R’s’</td>
</tr>
<tr>
<td>Animal care staff</td>
<td>Pride &amp; security at work</td>
<td>Control over decisions e.g. end-points</td>
<td>Input into AW policy</td>
</tr>
<tr>
<td>Animals</td>
<td>Minimal harms Humane husbandry</td>
<td>Environmental enrichment</td>
<td>Just interpretation of harm; benefit analysis</td>
</tr>
</tbody>
</table>
The economics of animal husbandry

RESOURCES
Land, Labour Animals, Capital

GOODS & SERVICES
Milk, eggs Meat, draft

HUMAN BENEFIT
Utility Satisfaction

production

consumption

"Use value"

"Non-use value"
Politics of Farm Animal Welfare

- **Laws and Regulations**
  - **Proscriptive**
    - necessary but lowest common denominator
    - evolve with changes in public opinion
  - **Incentives**
    - to improved practice: production and consumption

- **Public opinion**
  - freedom of choice: powerful influence on producers & retailers
  - needs to be informed and consistent with animals’ perception of their own welfare
Actions for animal welfare

- **Welfare assessment and quality control**
  - On-farm protocols
  - Promotion and rewards ("virtuous bicycle")
  - Animals in research

- **Education**
  - Public education and awareness
  - Professional and veterinary education
The “Virtuous Bicycle”
a delivery vehicle for improved farm animal welfare

- Standards set by Quality Assurance scheme

Retailer cycle
- Promote standards
  - Demonstrate proof of compliance
  - Establish compliance

Producer cycle
- Revise standards as necessary
  - Review and revise action plan
  - Implement action plan

- Increase awareness, trust and demand for high welfare food
- Self-assessment of husbandry by farmer
- External monitor of welfare

Proof of standards
- Establish compliance
- Demonstrate proof of compliance

Increase awareness, trust and demand for high welfare food
Virtuous bicycle: farm wheel

- Self assessment
  - Reveals farmer knowledge & attitudes
  - Saves time
- External monitoring
  - Outcome based (mostly)
  - Confers/confirms quality assurance
  - Identifies and prioritizes any needs for action
- Action plan
  - HACCP
- Review
Virtuous bicycle: farm wheel

- **Attractions**
  - Less “box ticking”
  - Focuses on major issues
  - Farmer ownership of action plan

- **Concerns**
  - “Where are the rewards?” (money, praise, pride)
    - “Will it create real improvements?”
    - “Will you ever admit that I am good enough?”
Virtuous bicycle: fork wheel

- Compliance
  - Quality Assurance (1-3 stars)
    - based on overall assessment and proof of effective action on specific issues
- Proof of compliance
  - transparency of audits
  - visits to starred farms
- Promotion
  - *The door is open*: free-range eggs, freedom foods
  - Retailer-driven QA programmes
Education

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.
A Curriculum for Animal Welfare (U of B)

- Principles of husbandry and welfare
- Animal welfare science
- Animal welfare Law and Regulations
- Animal welfare in clinical practice
Principles of husbandry and welfare (y1)

- Concepts of welfare, sentience and suffering
- The “Five Freedoms”
- Good husbandry: management of farm and companion animals
- Ethics of animal welfare
  - principles, scenarios, role playing
Animal welfare education

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: (physical and mental)
- Herd health and welfare
  - on-farm strategic planning
  - welfare-based quality assurance
- Ethical dilemmas in vet/client/patient interactions
“Our Constant Endeavour”

The Duty of the Veterinary 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