# Animal Welfare: Science, values and action

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# *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 Cordelia Principle

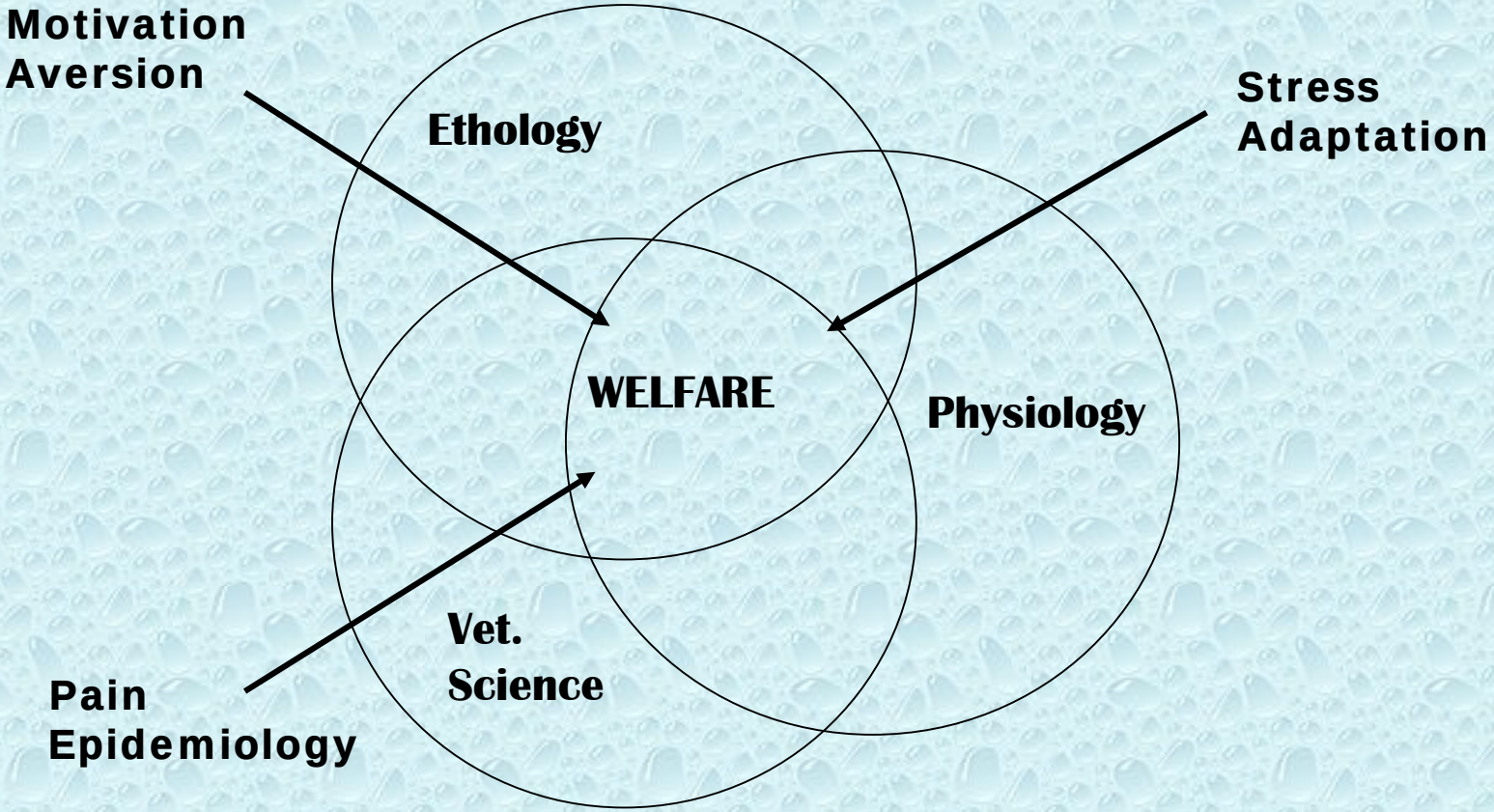
The welfare of a sentient animal is defined by its individual perception of its physical and emotional state

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

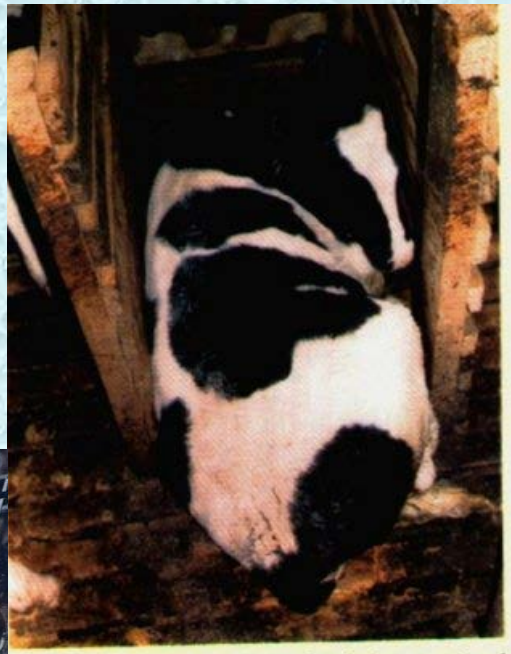
(USA, Roosevelt 1941)

- 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



*This is the fate of hundreds of thousands of calves every year in the United States.*

# 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.

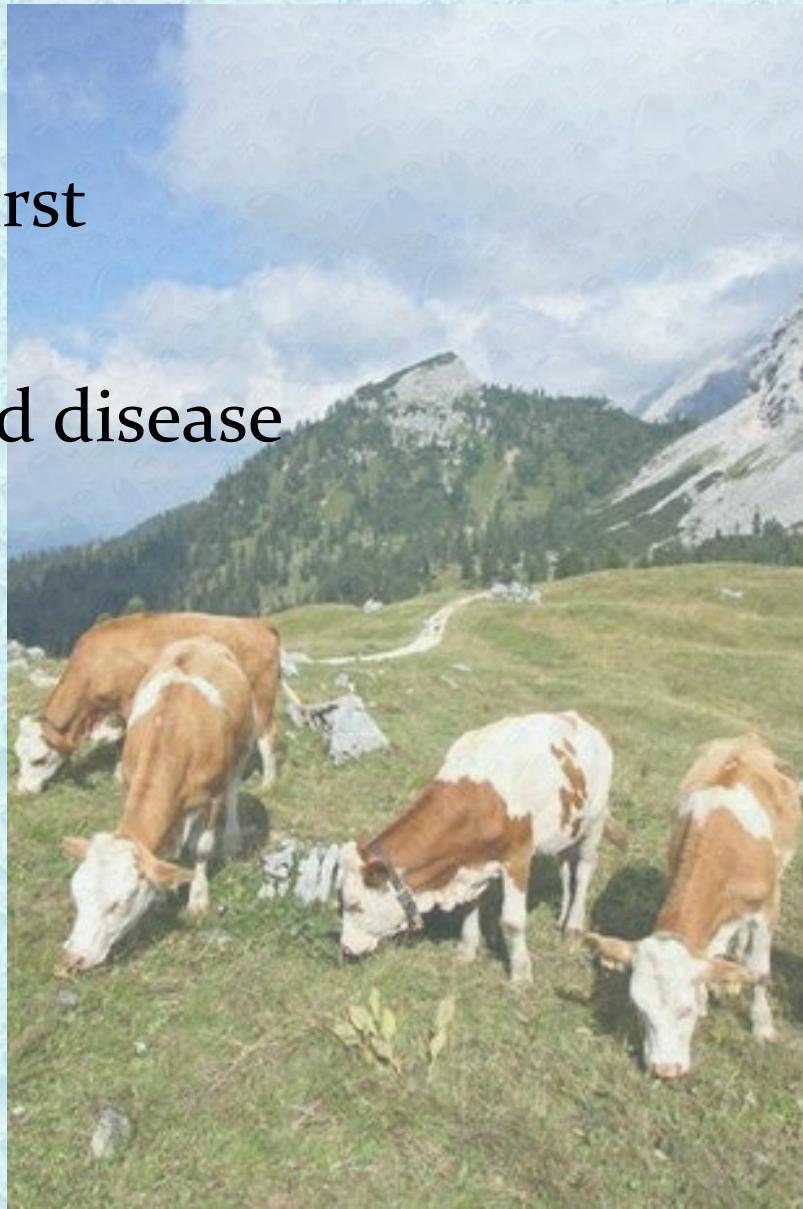
| Five Freedoms | Welfare principles (WQ) | Five domains |
| --- | --- | --- |
| Hunger and thirst | Good feeding | Food & water deprivation |
| Discomfort | Good housing | Environmental challenge |
| Pain, injury and disease | Good health | Disease and injury |
| Fear and stress | Appropriate behaviour | Behavioural restriction |
| Normal behaviour | | Mental state |

## 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

| | Problems | Solutions |
|---|---|---|
| Dry sows<br>Stabled horses | Frustrated foraging | Create foraging opportunities |
| Dairy cows | Metabolic hunger<br>“Full up” | Improve nutritive value<br>Optimise digestibility |
| Broiler breeders | Abnormal appetite | Decrease nutritive value<br>Create foraging opportunities |
| Out-wintered sheep & cattle | Metabolic hunger<br>Frustrated foraging | Nutrient supplements<br>Create foraging opportunities |

# 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

| Hazards | Pigs | Poultry | Dairy Cattle (including calves) |
|---|---|---|---|
| Feeding | Post weaning enteritis* | Lameness (Br) | Infertility*, ketosis<br>Rumen acidosis<br>Anaemia, ulcers (veal)* |
| Housing | Enzootic pneumonia<br>Stereotypies<br>Aggression, tail biting,<br>Lameness | Lameness (Br)<br>Frustration (LH)<br>Bone fractures (LH)<br>Feather pecking (LH) | Lameness, mastitis<br>Abnormal behaviour (veal)* |
| Breeding | Lameness (sows) | Lameness (Br)*<br>Bone fractures (LH)*<br>Aggression (LH)<br>Feather pecking (LH)? | Infertility*, mastitis,<br>Lameness<br>Exhaustion |
| Management | Aggression<br>Pain following mutilations | | Lameness*<br>Pain following mutilations |

# Welfare problems: extensive systems

| Hazards | Ruminants | Poultry | Pigs |
|---|---|---|---|
| Feeding | Hunger*<br>Infertility | | |
| Environment | Parasites*, infection<br>Predation | Predation*<br>Parasites*, infection<br>Aggression, fear | Thermal stress |
| Management | | | Aggression |
| Breeding | Wrong phenotype | Wrong phenotype | Wrong phenotype |

# 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.*

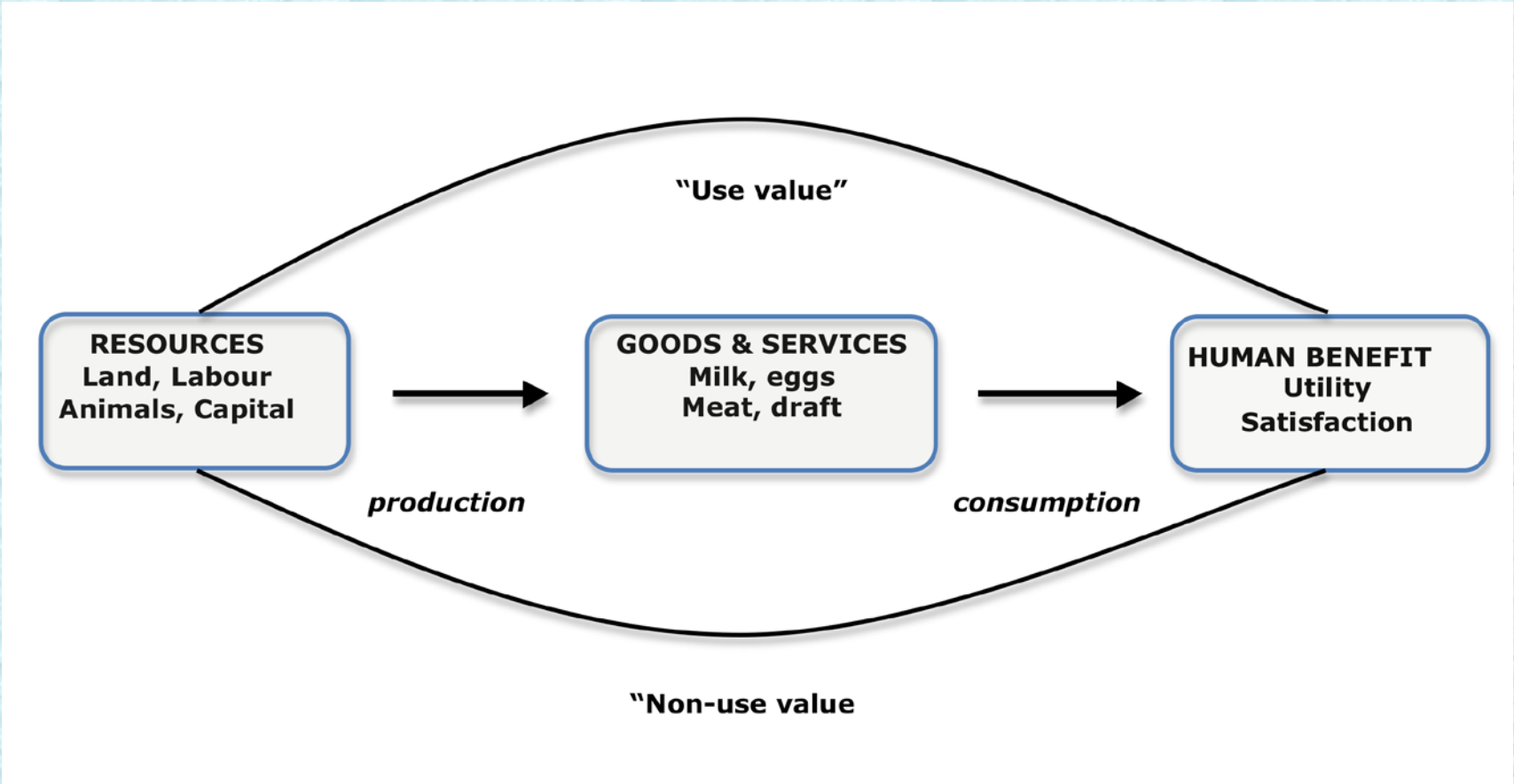
# Ethical matrix: farm animal husbandry

| | Wellbeing | Autonomy | Justice |
|---|---|---|---|
| ***Moral agents***<br>Human society<br><br>Producers, land owners | Wholesome, affordable food<br>Access to countryside<br><br>Financial reward<br>Pride in work | Freedom of choice<br><br>Free competition | Fair food pricing<br>Legislation & incentives for good husbandry<br>Fair trade<br>Good husbandry |
| ***Moral patients***<br>Farm animals<br><br>The living environment | Good, humane husbandry<br><br>Conservation, sustainability | Environmental enrichment, Choice<br><br>Biodiversity<br>'Live and let live' | 'A life worth living'<br><br>Respect for both environment and stewards |

# Ethical matrix: Use of animals in scientific procedures

| | Wellbeing | Autonomy | Justice |
|---|---|---|---|
| Human society | Health & Safety | Freedom of choice | Compassion for animals |
| Regulators | Responsibility to society and animals | Open to new developments | Respect for AW in legislation, codes of practice |
| Operators | Sympathetic regulation of procedures | Open to new developments | Compassionate interpretation of regs. 'Three R's' |
| Animal care staff | Pride & security at work | Control over decisions e.g. end-points | Input into AW policy |
| Animals | Minimal harms Humane husbandry | Environmental enrichment | Just interpretation of harm; benefit analysis |

# The economics of animal husbandry



# Politics of Farm Animal Welfare

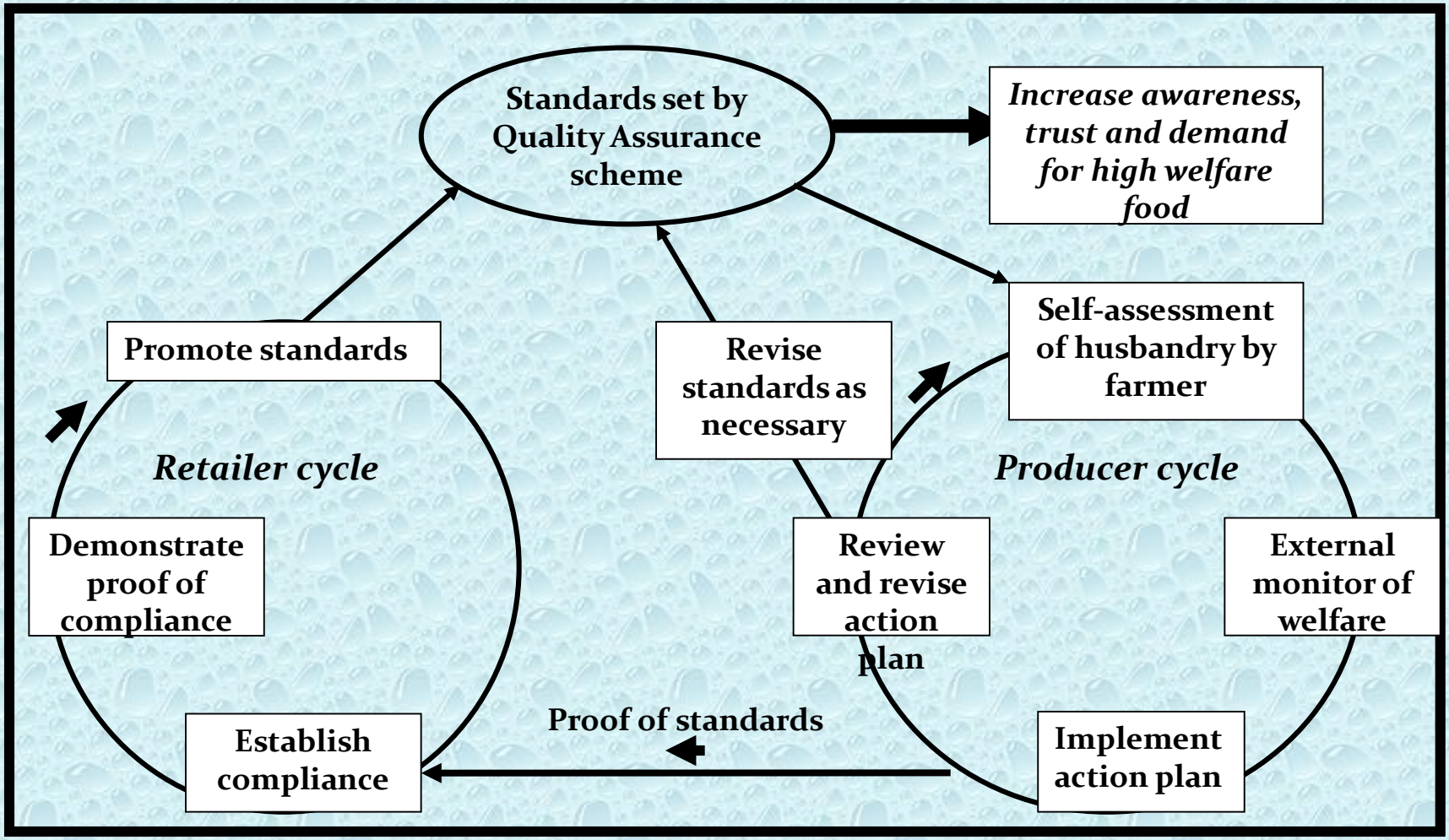
- **Laws and Regulations**
  - **Proscriptive**
    - **– necessary but lowest common denominator**
    - **- evolve with changes in public opinion**
  - **Incentives**
    - **- to improved practice: production and consumption**
- **Public opinion**
  - **- freedom of choice: powerful influence on producers & 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



# 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?*

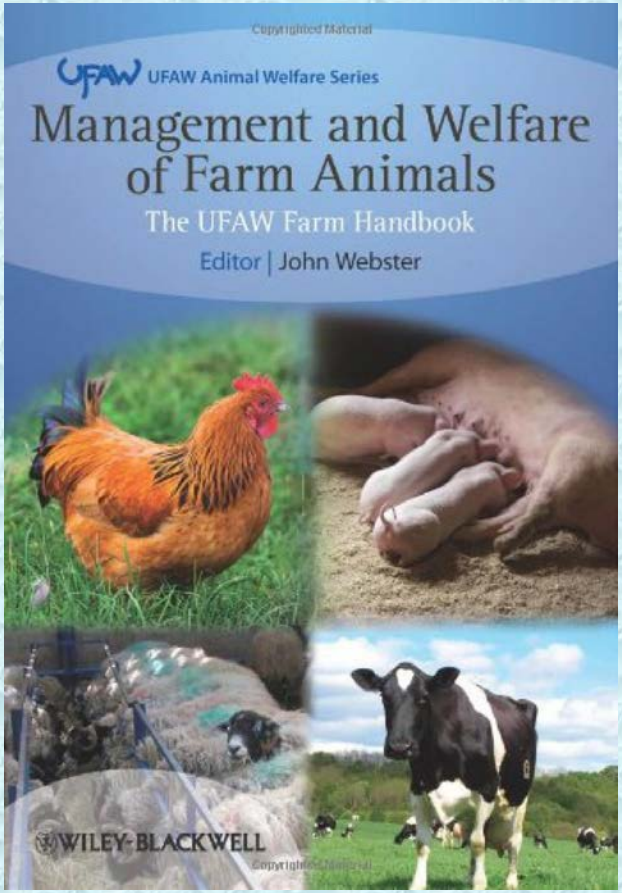
- Because animals need vets. who understand not only what keeps them healthy but also how they feel as they seek to meet their physiological and behavioural needs.

# 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