What animals want: learning and delivering animal welfare science

Dr Siobhan Mullan
How do we know what farm animals want?

- Observations of behaviour
  - What do animals (choose to) do
  - Specific indicators of pleasure
- Fundamental research
  - Brain imaging
  - Laboratory studies
- Extrapolation from (principles of) human experiences
Positive experiences for animals

• Short term
• Conscious element
• Emotion or feeling
• May lead to more generalised ‘good mood’
Which animal is experiencing the most pleasure?

A. Hen
B. Chick
C. Ewe
D. Lamb
E. I don’t know
“In a sense, pleasure can be thought of as evolution’s boldest trick, serving to motivate an individual to pursue rewards necessary for fitness yet in modern environments of abundance, also inducing maladaptive pursuits such as addictions.” (Berridge and Kringelbach, 2015)
Preference tests

- Understand preference for discrete resources
- May be choosing the ‘lesser of two evils’
- Individuals often make consistent choices, not necessarily the same as another

Photo credit: Christine Nicol
What influences positive experiences?

Happiness depends, as Nature shows, Less on exterior things than most suppose.

-William Cowper (1731-1800)
Happy genes?

- Human twin studies show ~ 50% of the variance in quality of life ratings is heritable.
- Personality type appears important in explaining variance in quality of life ratings
  - extraverts report increased QoL, neurotics lower QoL
Individual variation

- High sensation seekers were more satisfied with days when they experienced pleasure and high arousal emotions.

- Low sensation seekers preferred contentment.
Selective breeding for pleasure?

- Tickled rats - emit 50 kHz ultrasonic sounds: ‘laughing’.
Which animal has the greater innate capacity for pleasure?

A. Commercial laying hen
B. Commercial broiler chicken
C. Neither - they have the same capacity
Selecting breeding against pleasure?
What do positive experiences contribute to overall welfare
“overall well-being is not simply a lack of negative states, but may predominantly depend upon positive experiences” (Seligman & Csikszentmihalyi 2000).
Which Face Comes Closest to Expressing How You Feel About Your Life as a Whole?

(Black & McCafferty, 1998)
Negative vs Positive contribution to overall welfare state

- Pain is an important component of welfare
- Pain can be ameliorated by positive experiences
- Pain/depression can reduce ability to experience pleasures
"What do positive experiences contribute to overall welfare in people

• “People experience abundant well-being when they feel many pleasant and few unpleasant emotions, when they are engaged in interesting activities, when they experience many pleasures and few pains, and when they are satisfied with their lives.”

• **Time spent in positive state** is a better predictor of reported well-being than intensity of positive states

(Edwards 2000)
How can we assess positive experiences in practice?

Review

Assessment of positive emotions in animals to improve their welfare

Alain Boissy a,*, Gerhard Manteuffel b, Margit Bak Jensen c, Randi Oppermann Moe d, Berry Spruijt e, Linda J. Keeling f, Christoph Winckler g, Björn Forkman h, Ivan Dimitrov i, Jan Langbein b, Morten Bakken j, Isabelle Veissier a, Arnaud Aubert k
Behavioural observations

- Qualitative Behavioural Assessment
- Play behaviour
- Positive social behaviours
- Vocalisations
- Specific well-being ‘markers’
Reward farmers for providing positive experiences

- Framework to promote meaningful choices developed for
  - Hens
  - Sheep
  - Dairy cows
Offer meaningful choices

• Likely to increase positive emotions by
  • Enjoying preferred items
  • Additional pleasure conferred through choice itself
  • Catering for a range of personality types
  • Modulating hedonic adaption

Animals ‘choose to choose’!
The Good Life concept

Quality of Life

A Good Life

positively

A Life Worth Living

Comfort

Comfort

Discomfort

Negative Welfare

A Life not worth living

Positively

Negative Welfare

Opportunity

Pleasure

Hunger and Thirst

Interest

Restricted Normal Behaviour

Confidence

Fear and Distress

A Healthy Life

Pain, Injury and Disease

Freedom

Opportunities ← Resources

**Healthy Life**
- Positive genetic selection
- Managing daily welfare
- Dustbathing choices

**Interest**
- Enriched outdoor environment
- Enriched indoor environment
- Positive social experiences

**Confidence**
- Nesting choices
- Positive handler experiences

**Pleasure**
- Food choices
- Cognition enrichment
- Environmental choices

**Comfort**
- Thermal choices
- Physical choices

5 levels
- Legislation
- Welfare code
- Welfare +
- Welfare ++
- Welfare +++

Science-led
Farmer co-creation (Sheep and Dairy)

49 free range/organic flocks
49 free range/organic flocks
Which should be weighted higher for hens:

A. Positive social experiences
B. Pleasure from food choices
Which should be weighted higher for hens:

A. Thermal comfort
B. Physical comfort
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Foregone net margin compared to the baseline (original net margin: £0.71/doz)
## Total cost to satisfy higher resource needs

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Data from 49 commercial farms
Potential to reduce costs (while maintaining the same score)

Estimated cost

Maximum cost incurred to obtain a given score

Minimum cost

Good life score (full score = 39)
How supportive would you feel about the principle of a ‘welfare stewardship’ scheme based on offering meaningful choices to animals?

A. Extremely supportive
B. Somewhat supportive
C. Neutral
D. Somewhat unsupportive
E. Extremely unsupportive
Summary

• Providing positive experiences is essential for good welfare

  • Ensure breeding maintains capacity for experiencing pleasure
  • Need to avoid pain and depression

  • Focus on duration rather than intensity of positive emotions
  • Offer variety of meaningful choices
  • Support farmers to provide choices
Thank you for listening!