

## Guide to the Animal Welfare Assessment Scoring Protocol

The aim of the Defra-funded project is to assess the societal benefit of welfare impacts of policy changes. For example, if government was to phase out the use of colony cages in egg production, what would be the likely welfare impact for laying hens and how do citizens value that impact?

In order to answer such policy impact questions, the project is using an expert panel to elicit welfare scientists' assessments of the impact of policy on the welfare of animals affected (e.g. laying hens currently kept in colony cages). Using the example of the phasing out of colony cages, producers would move away from using colony cages to using non-cage systems such as barn and free-range production. Thus, in order to assess the possible change in welfare of the hen population, the expert panel need to assess the levels of welfare currently associated with these systems one by one which will then enable estimation of the likely change in welfare of moving from the colony cage system to other systems.

During the project, the expert panel will be asked to consider six specified case-study policy changes (one associated with each of the main livestock production systems) and score the level of welfare associated with specified animal production systems (e.g. egg production systems with and without cages). The approach to scoring is grounded in the Welfare Quality Criteria ([www.welfarequality.net](http://www.welfarequality.net)) but further developed and expanded for expert panel welfare assessment rather than farm-based measurement. Criteria scores are aggregated into Principle scores and then Principle scores are aggregated into a single welfare score on a 0-100 scale (see description below). This single score can be related to a second part of the research determining citizens' willingness to pay for animal welfare score improvements.

An expert panel elicitation protocol consistent with that described by Hemming et al (2018) will be employed. It consists of five main stages.

### Stages of the score elicitation process

1. Expert panel members are sent details of the scoring task including information on the policy scenario(s) and systems to be scored.
2. Individual members provide first round scores remotely for each of the 12 welfare Criteria on a 0-100 scale together with their **90% certainty upper and lower scores bounds (i.e. the bounds within which you are 90% sure the true assessment score value lies)**. Panel members are also asked to provide a brief note on the reasoning behind each of their scores. Scores and comments are anonymized within the panel (i.e. scores and the individual providing those scores are not linked for other panel members to see).

3. Panel scores are collated by the research team and provided to panel members with aggregated scores prior to panel discussion of scores.
4. The panel meets together online to discuss first-round scores and members have the opportunity as individuals to revise their own scores (anonymous to other panel members) in the light of the discussion. During the discussion, attention will be given to particularly high or low scores and outliers. Panel members are encouraged to revise their scores if they wish. Panel members are advised to consider and make note of their revised scores during the discussion of first round Criteria scores and are asked to make brief notes regarding any score they wish to change and why to help document the scoring process (anonymized).
5. Second-round scores and aggregate scores are shared with panel members as a group with final comments and discussion as necessary within the meeting.

## Guide to scoring

Panel members are free to make their own scoring decisions, using their own thought processes. However, panel members should:

1. Consider the welfare implications for the population of animals within the defined production system.
2. Consider the welfare of individual animals within the animal population impacted as well as animal groups. For example, you may wish to think about an 'average' animal in a generally well-managed unit/farm and animals in less-well or poorly managed units and their distribution within the population of animals affected.
3. Consider the **lifetime of the animals within the system** under consideration and the **overall birth to slaughter experience of animals** affected.
4. Use any information provided to you or available to you to help inform your thinking – this includes discussion with others outside the panel.
5. Do not discuss scores with other panel members until after the first round of scoring.
6. Score each specified system for all 12 welfare Criteria individually.
7. Use the descriptions of each of the welfare Criteria (see below) to assess **all** welfare impacts associated with each Criterion, **considering not only freedom from negative states but also the opportunities for positive welfare for animals (i.e. rewarding experiences). The panel should take into their consideration the mental states (including emotional states) and subjective experiences of animals as well as physical states for each Criterion.**

8. Assume that the policy scenario described has been fully implemented (even if in reality the policy may take years to fully implement).
9. Identify whether you believe the welfare Criteria lack any important considerations which you think need to be included in the appraisal.

## **Welfare Criteria**

Panel members are asked to consider the welfare implications, **including both animals' freedom from negative physical and mental (including emotional) states and opportunities for animals in relation to positive physical and mental (including emotional) states and subjective experiences**, associated with **each** of the following welfare Criteria descriptions. Negative affective states for animals, such as fear, distress, frustration should be avoided and positive affective states, such as contentment, playfulness, promoted.

1. Provision and access to food. Animals should have appropriate access to the quantity and quality of appropriate foodstuffs for health and wellbeing.
2. Provision and access to water. Animals should have appropriate access to the quantity and quality of water for health and wellbeing.
3. Animals should have comfort when resting.
4. Animals should have thermal comfort being neither too hot nor too cold.
5. Animals should have sufficient space to move freely.
6. Animals should be free from injuries and disorders (such as skin conditions, lameness, bone fractures etc).
7. Animals should be free from disease, including metabolic conditions, with high standards of health care and hygiene.
8. Animals should not suffer pain - for example as a result of poor management, handling, surgical or other procedures, slaughter etc.
9. Animals should be able to express normal, non-harmful social behaviours (such as grooming and social bonding).
10. Animals should be able to express other normal behaviours (e.g. foraging, exploring).
11. Animals should be handled well with positive and not negative animal-human relationships.
12. Additional aspects not already adequately covered above in relation to the balance between positive and negative affective states for animals.

Panel members should use their expert judgement to score each of these Criteria on a 0-100 scale for the specified production system/method. **A score of zero denotes extreme suffering for the animal whereas 100 denotes the highest achievable welfare possible.**

### **Aggregation of scores**

Criteria scores will be aggregated into four welfare Principles: Good Feeding (Criteria 1 and 2), Good Housing (Criteria 3,4 and 5), Good Health (Criteria 6,7 and 8) and Appropriate Behaviour (Criteria 9, 10, 11 and 12). The four welfare Principles are then aggregated into a single welfare score. Aggregation of scores uses Choquet Integral weightings elicited from the expert panel. These weightings tend to give greater weight to low scores compared to high ones. This is based on the principle that, when aggregating scores, high Criteria or Principle scores cannot easily compensate for low Criteria or Principle scores.

### **Reference**

Hemming, V., Burgman, M.A., Hanea, A.M., McBride, M.F. and Wintle, B.C. (2018) A practical guide to structured expert elicitation using the IDEA protocol. *Methods in Ecology and Evolution*, Vol 9, 169-180.