



USING ANIMAL-BASED CRITERIA TO ASSESS ANIMAL WELFARE

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Definition of animal welfare

Animal welfare means the physical and mental state of an *animal* in relation to the conditions in which it lives and dies.

An *animal* experiences good welfare if the *animal* is healthy, comfortable, well nourished, safe, is not suffering from unpleasant states such as pain, fear and distress, and is able to express behaviours that are important for its physical and mental state.

Good *animal welfare* requires disease prevention and appropriate veterinary care, shelter, management and nutrition, a stimulating and safe environment, humane handling and humane *slaughter* or *killing*. While *animal welfare* refers to the state of the *animal*, the treatment that an *animal* receives is covered by other terms such as animal care, animal husbandry, and humane treatment.

(OIE 2019, Article 7.1.1.)

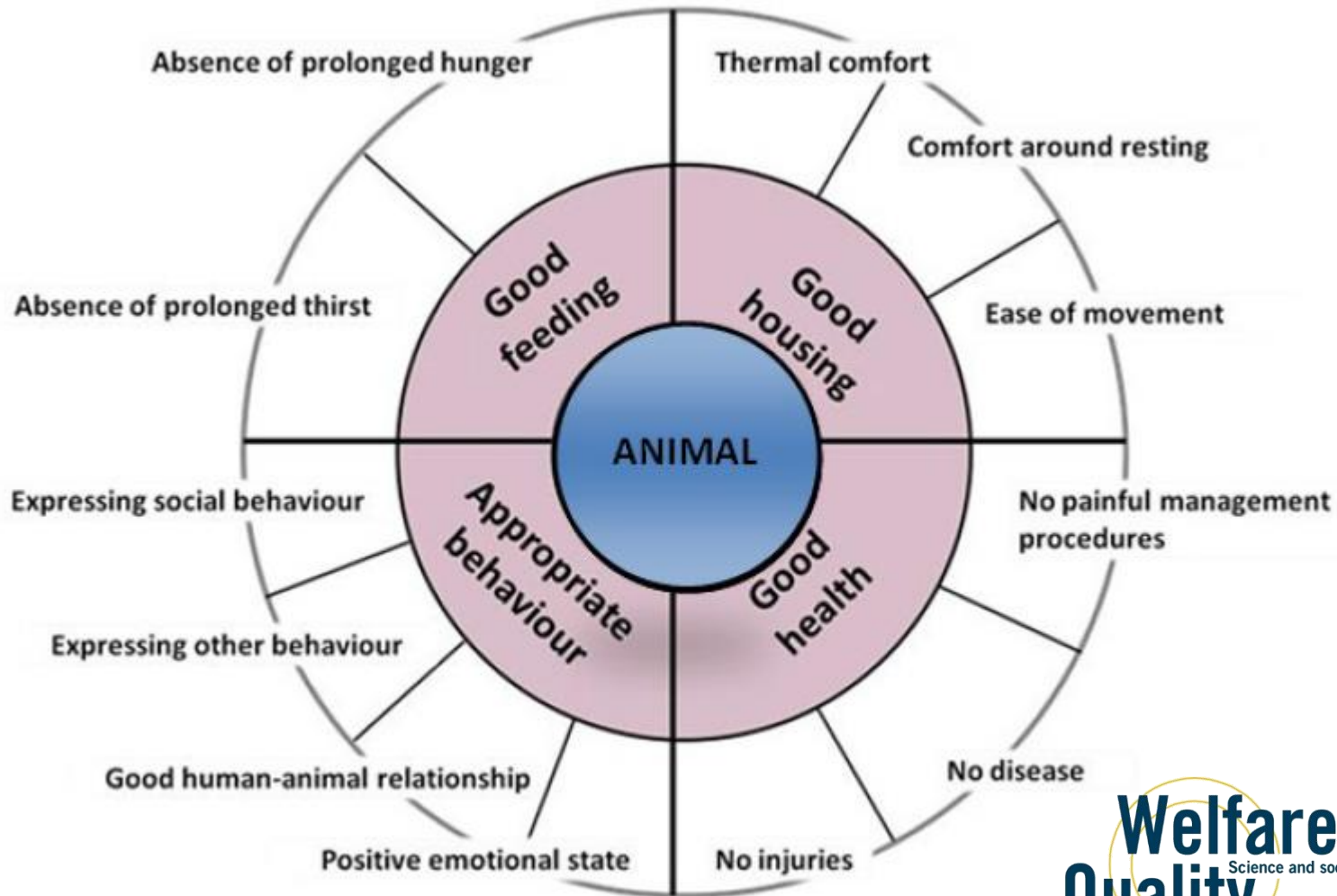
Why do we need to assess animal welfare?

- You can't manage what you cannot measure
- Animal welfare is multi-faceted
- Room for subjective interpretation

How do we assess animal welfare?



Animal welfare assessment: multi-dimensional aspects



A central theme

The welfare of animals should be assessed using outcome-based measurables, preferentially animal-based measurables

Animal-based vs. Resource-based criteria

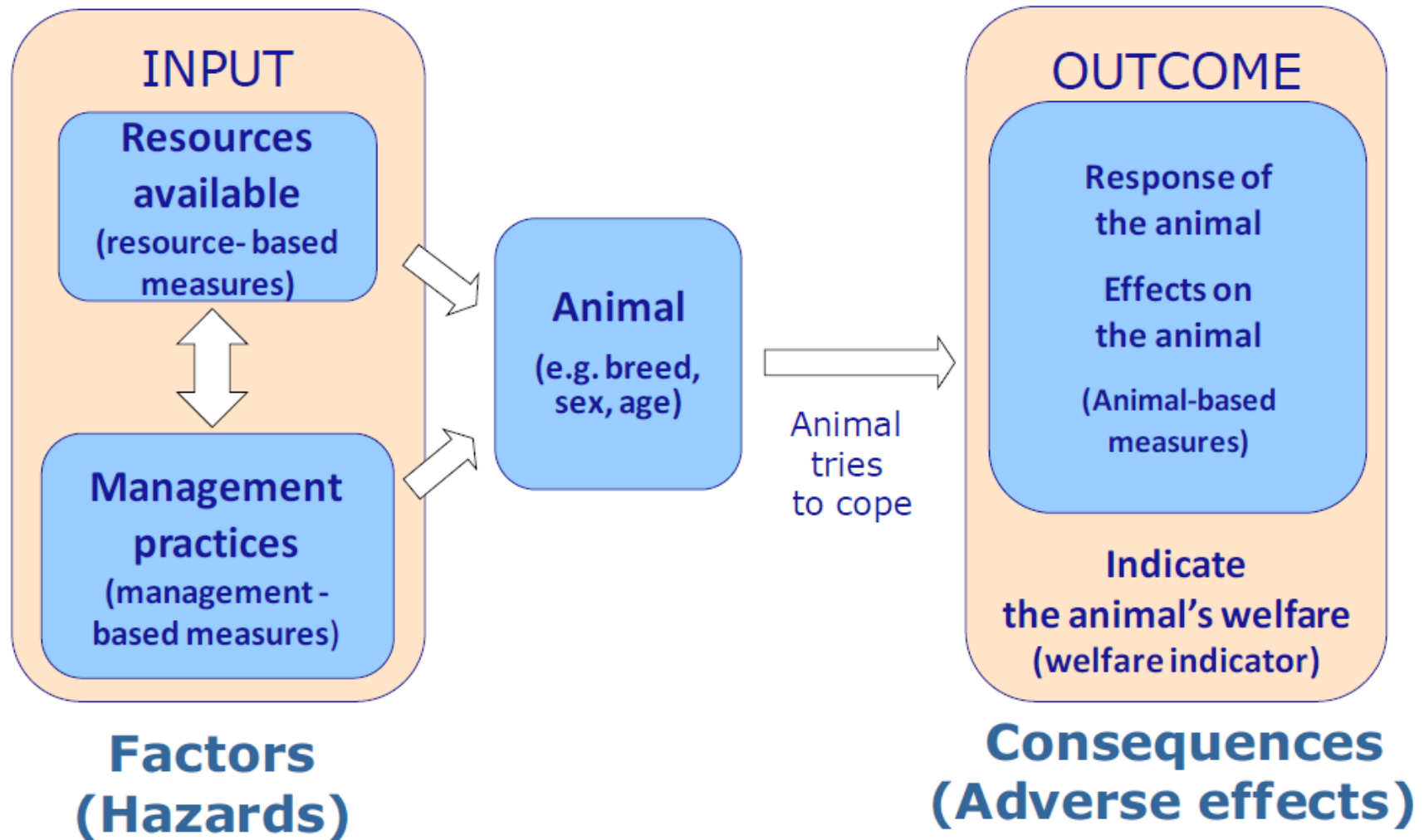
Performance / outcome (e.g. animal)-based criteria

- Body condition, weight
- Foot condition
- Disease
- Injury
- Skin condition
- Behaviour: locomotory, comfort, vocalisation, foraging, resting, social interactions, thermoregulatory, fear
- Etc.

Resource (design or management)-based criteria

- Physical environment: space, feeder, flooring, temperature, air quality, protection, etc.
- Management practices: inspection, handling, treatment, pain mitigation, nutrition, breeding, biosecurity, etc.

Association between animal-based & resource-based criteria



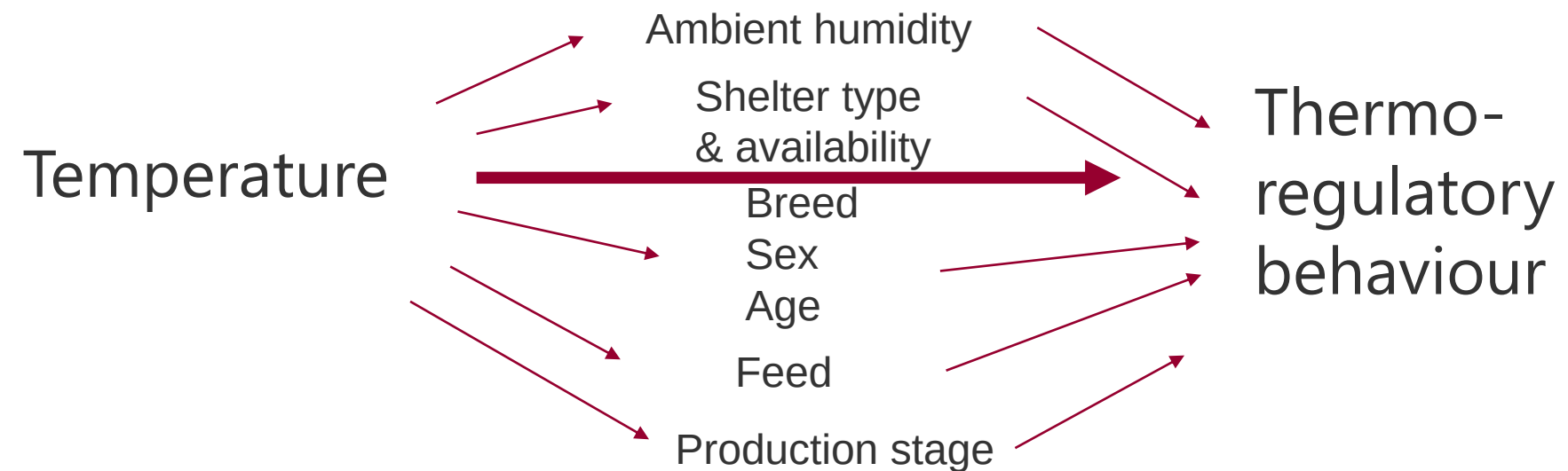
Animal-based criteria = more direct assessment of welfare

- Input factors often easier to record than the responses of the animal, and more likely to be consistent over time
- Problem: a resource provision may not necessarily be used or achieve the intended outcome
- Animals can adapt, therefore inputs $\neq$ outcomes
- This makes animal-based criteria a closer reflection of actual welfare states than resource-based criteria

Example 1



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Animal-based criteria are solution-oriented

➤ Often common currency, of broad utility, across:

- Housing systems
- Management differences
- Varying climate conditions
- Etc.



➤ Move beyond “one size fits all” - multiple solutions to 1 problem

➤ Allows farmers to find customised, often creative, solutions that fit their needs & capacities

Example 2

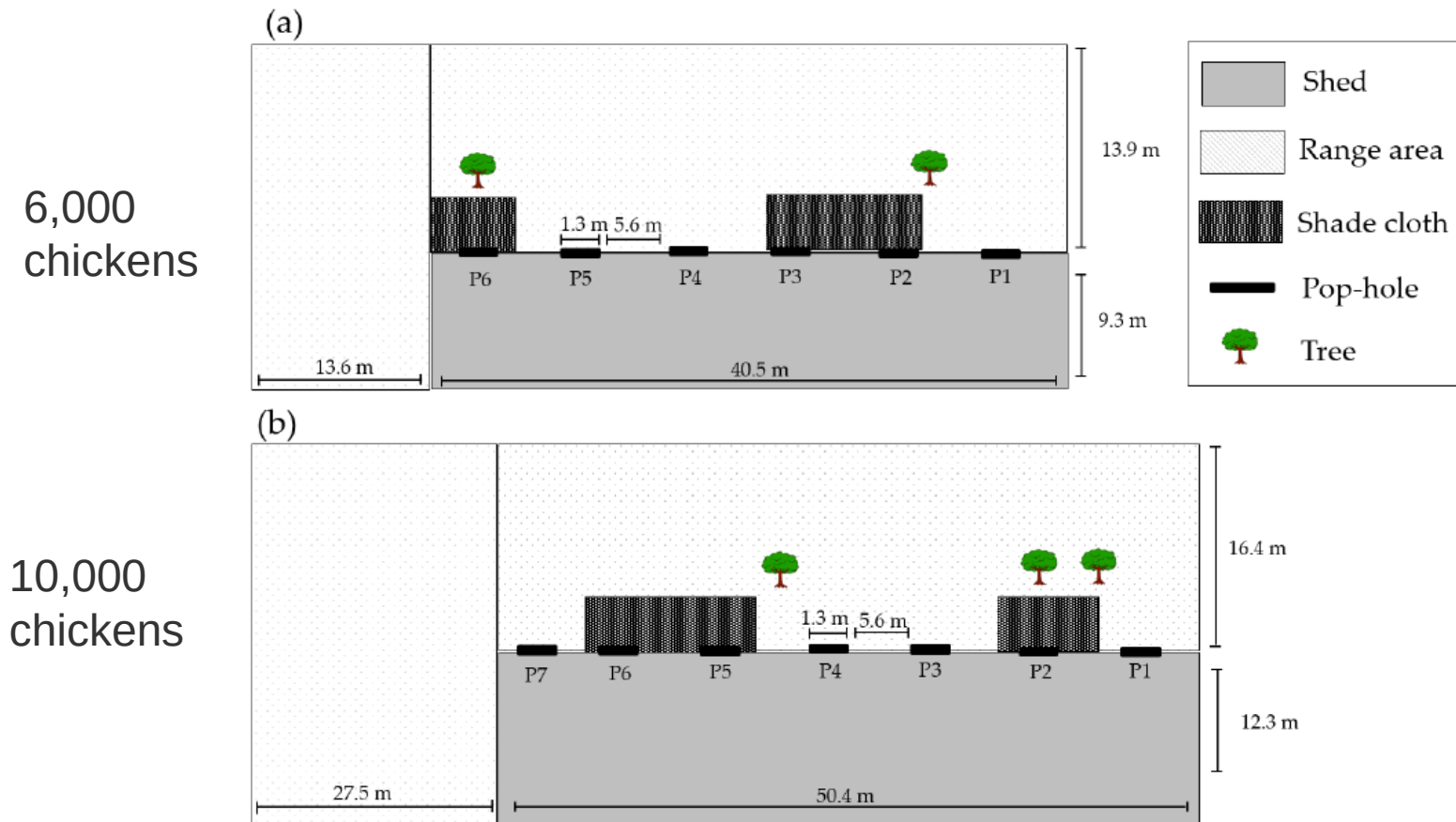


Figure 1. Diagram of study sheds and range areas (a) shed one, flocks A and C and (b) shed two, flocks B and D. Pop-holes are numbered (P1–P7) sequentially from the front of the shed (shed access point).

How to use animal-based criteria?

- Define **what is of interest**: 'fit for purpose'
 - select necessary criteria
 - skills of the person
 - conditions
- Define **how to assess it**:
 - on-farm by routine sampling of animals, targeted sampling, responses (e.g. loose faeces), or at slaughter
 - time availability & financial constraints
- Define **when and who to assess**:
 - animals selection: representative or at risk (e.g. sick pen)
 - sample size

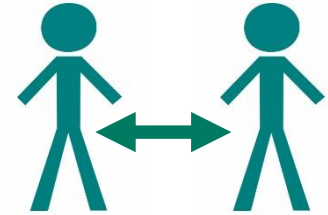
4 key aspects for a good criteria

- Valid
- Reliable
- Specific
- Feasible

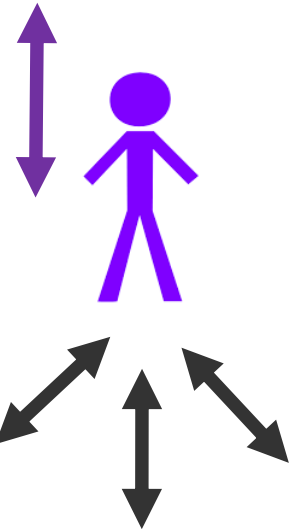
- Does the criteria measure what it is supposed to measure?
- Is it sensitive enough to detect changes?
- Validity may be situation-dependent:
 - Production stage
 - How often and how long observations last
 - Time of the day
 - Etc.

Reliable

- Intra-observer reliability: repeated visits/collective
- same sample same assessor



- Inter-observer reliability: different persons during
the same situation – same sample different
assessors



- Across situations

May require training & refreshers to “recalibrate”
(reproducibility) at regular intervals

- Animal-based criteria are often more time consuming or labour intensive than resource-based:
 - score a representative number of animals
 - require to get close to / handle the animals
- Often collected on-site by the “first-line” nodes, e.g. farmers, vets, auditors
- Require a minimum level of expertise

Specific

- If interested to relate it to potential causes
- Can help identify specific welfare aspects and potentially causes
- Important for instance is goal to take action/ corrections

Constant methodological & technical development

- Time-consuming assessment can be replaced by automatic data recording, e.g. Precision Livestock Farming and use of sensors (accelerometers, image-based, vocalisation, environmental parameters)
- Integrative measure, e.g. life-long assessment at slaughter, predictors and risk assessment to enhance practicality
- New methodologies: **Iceberg indicators**, -omics, etc

4 key aspects for a good criteria

➤ Valid

Get advices from local experts

➤ Reliable

➤ Specific

Use validated welfare assessment

➤ Feasible

Examples of validated welfare assessment scheme

The following measures have been identified by AssureWel as being important indicators of laying hen welfare. The criteria to select these 'core' measures included consideration as to how practical they are to assess on-farm.

1. Feather loss
2. Bird dirtiness
3. Beak trimming
4. Antagonistic behaviours
5. Flightiness
6. Birds needing further care
7. Mortality



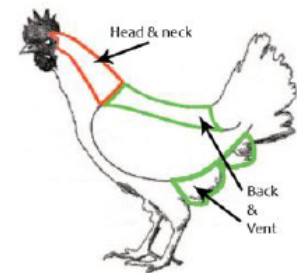
1. Feather loss

Sample size:

50 birds (3 or more assessed jointly with the stockperson)

Method of assessment:

Assess and score 5 birds in each of 10 different areas of house and/or range. Visually assess the head/neck area back/vent area of the bird (without handling birds).



Score separately for **head/neck** area and **back/vent** area:

Scoring:

- 0 = No/Minimal feather loss**
No bare skin visible, no or slight wear, only single feathers missing
- 1 = Slight feather loss**
Moderate wear, damaged feathers or 2 or more adjacent feathers missing up to bare skin visible < 5cm maximum dimension
- 2 = Moderate/Severe feather loss**
Bare skin visible $\geq$ 5cm maximum dimension

Conclusions

- Animal-based criteria reflect an animal's actual welfare state more accurately than resource-based criteria
- Animal-based criteria offer a common currency, therefore with broader utility & allow for flexible solutions
- Needs to be valid, reliable and feasible; especially as animal-based criteria are often collected on-site by the "first-line" nodes (e.g. farmers, vets, auditors)
- When not available or feasible, resource-based criteria with strong association to welfare outcomes may be substitutes

