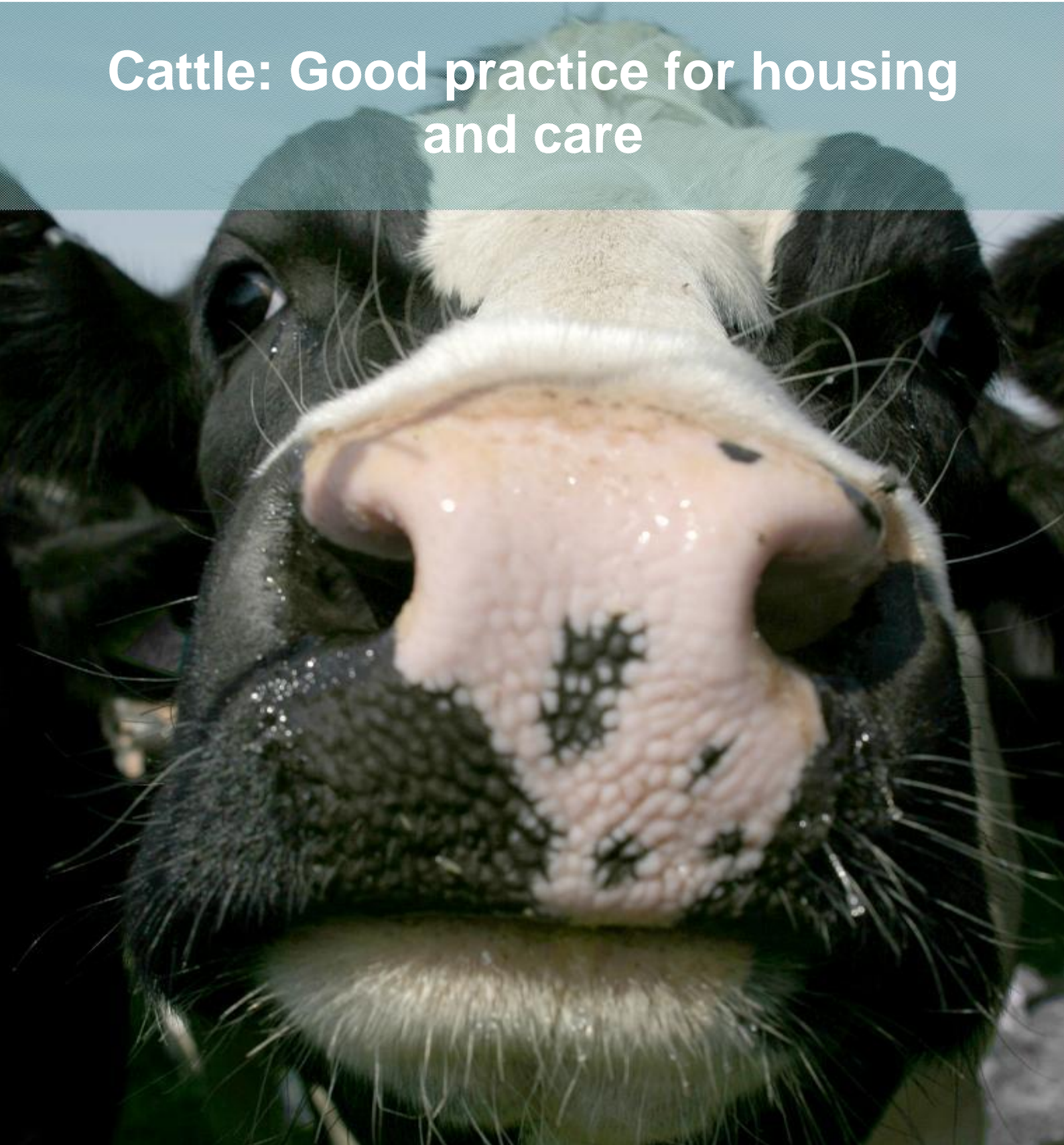




Supplementary resources for members of local ethical review processes

Cattle: Good practice for housing and care





Before using these guidance notes, please read the introductory sheet that accompanies this series:
Supplementary resources for lay members: an introduction

Natural history

Cattle (*Bos taurus*) are thought to be one of the first animals domesticated and farmed by humans. They are adapted to graze and browse grasses, and spend most of their time foraging or resting to ruminate. They are social animals, strongly preferring to live in groups and synchronise activities such as eating, ruminating and lying down. Eating takes up about 8 hours a day, and ruminating 6 to 7 hours a day.

Wild cattle form social hierarchies that act to decrease aggressive encounters and that often change depending on the nature and availability of a resource. Before domestication they are thought to have grazed in single sex groups with the number of animals optimised to minimise the risk of predation to each individual, whilst avoiding excessive competition for resources such as food and mates. Similarly, herds of domesticated cattle will readily form social hierarchies. They are able to recognise individual herd members and have complex methods of communicating with each other. This includes visual communication to indicate reproductive state and socially relevant information; olfactory communication through the use of pheromones; tactile communication (including aggressive encounters, allogrooming and sexual contact); and vocalising. Their main senses for investigating their environment are vision and smell.

What cattle need

The most species-appropriate 'housing' for cattle is a well-managed pasture with adequate cover and shade, and a dry lying area. This allows them to forage, and gives them space to lie comfortably and rest undisturbed. However, many research programs require animals to be housed indoors. In these cases, housing and handling must take into account the social nature and natural behaviour of the species to ensure psychological and physical well-being.

The following list of requirements has been defined on the basis of published animal welfare studies that have evaluated cattle preferences and need for resources. More information on cattle welfare, housing and care can be found in the references listed at the end of this document.

- **Social housing**

In the wild, an individual cow or bull relies on the presence of herd mates to help detect and avoid predators, so cattle find being on their own highly stressful. Group-housing is therefore the only acceptable husbandry system. (Note that livestock regulations state that calves must be group-housed from 8 weeks of age.)

Stable relationships within the herd are important for minimising social tensions or conflicts between individuals. Group composition should therefore not be altered and new animals should not be introduced to an established herd.

Cattle should not be tethered or housed individually because they find this very stressful. If single housing is necessary for a *compelling and justifiable* scientific or veterinary reason, it should be for the minimum amount of time possible, and individuals must always be able to see, hear and smell other familiar animals. One option is to have pen walls that are solid to a height of about 1m, with a



section of railing at the top so that the animals can see into other pens and are able to see humans approaching.

- **Pens of adequate size**

Cattle are herd animals and frequently synchronise activities such as eating, ruminating and lying down. Loose housing systems should be provided with sufficient space to allow the cattle to lie down simultaneously in comfort, change position and get up easily without antagonising or injuring other animals. There should also be enough space to permit appropriate social interactions, including allowing subordinate animals to move away from dominant individuals. Baffles or barriers can help to reduce agonistic behaviour.

If cattle are housed in pens and space is limited, a shared yard is one way to provide additional space for exercise, with regular and frequent access for established groups.

The tie-stall is an extremely uncomfortable, painful, frustrating and boring housing environment, which is not appropriate for research cattle.

- **Solid flooring with suitable litter material**

Cattle kept indoors require non-slip solid flooring with comfortable litter material such as straw. They spend a large proportion of their day lying down to aid rumination, so they need a lying area which is well drained, draught free, comfortable and well maintained with dry bedding. Solid concrete or slatted floors should not be used as these create a serious risk of injury.

The flooring of walking areas also needs to be dry to stop cattle slipping and injuring themselves.

- **A stimulating environment**

In common with other species, cattle will benefit from additional environmental stimulation. Scratching or rubbing devices (e.g. “cow brushes”) enable the animals to perform an important natural behaviour and should always be provided. These are commercially available and have been shown to improve coat condition and reduce discomfort behaviours associated with itching. Other enrichment options are footballs for young animals, or hanging items such as large, hard plastic balls, heavy duty Kong™ toys, chains or empty gallon plastic containers.

- **Adequate feeder space per animal**

Cattle need high fibre food to allow for normal digestion and metabolism, either through *ad libitum* access to hay or straw, or regular access to pasture (with supplementation during the spring). An appropriate concentrated diet should also be provided to prevent metabolic imbalances and indigestion.

The animals should all be able to eat at the same time, in keeping with their natural behaviour patterns. It is thus good practice to provide trough lengths for both cattle and calves according to higher welfare standards for farmed animals. For example, RSPCA Welfare Standards for Farm Animals recommend that: cattle of 350 to 700kg have 550 to 750mm trough space per head for controlled rationed feeding troughs, 150 to 250mm trough space per head for *ad lib* silage troughs, and 450 to 700 mm of water trough space per head.

- **Respect for their routine**

Cattle develop strong habits in their daily routines, for example in their milking hierarchies (the order in which they approach the milking parlour), feeding times, and individual resting site locations. These predictable routines should be respected as interference can cause stress to individuals and also disturb the herd as a whole. They can also be used to facilitate handling, husbandry and scientific procedures.



- **Human interaction**

Cattle are a prey species and can easily be alarmed. They are very sensitive to human interactions, recognise people through voice and body language, and quickly learn whom they can trust. They respond well to stability, so personnel should maintain routines and consistent, confident actions. Changing the care staff who look after the cattle should be avoided as much as possible.

Well-adjusted cattle should show no signs of apprehension when being approached, and no signs of fear, resistance or distress when being handled. This should be done in a calm, non-aggressive manner - they respond well to gentle stroking, patting, and scratching of their heads, but if they are not treated with patience and respect they can become stubborn or aggressive. Physical or electric goads must never be used

Potential husbandry related welfare problems and how to resolve them

Abnormal behaviours such as tongue rolling and nibbling can be due to a lack of stimulation and/or an overly concentrated diet. The risk of these behaviours occurring can be reduced by ensuring that the diet contains sufficient levels of fibre, and that additional *ad libitum* roughage is made available. Adequate socialisation, environmental stimulation and exercise will also help to reduce abnormal behaviour.

Lameness is one of the most prevalent husbandry-related welfare issues amongst cattle. Changes in gait can be caused either by disease or by inadequate husbandry. Well managed straw yards (as opposed to cubicle housing) can help to reduce levels of lameness, though they must be kept clean to reduce the risk of environmental mastitis. Lameness can also be reduced by ensuring that housing conditions, including flooring, are appropriate and nutritional needs are met, animals are regularly assessed, and good husbandry practices are maintained.



Cattle housing and care: ERP aide-memoire

- ❖ Social housing in stable groups
- ❖ Any unavoidably individually housed animals can see, smell and hear other familiar cattle
- ❖ Pens of adequate size to allow a range of activities with unrestricted access to lying sites
- ❖ Non-slip solid flooring with a well drained, draught free, comfortable lying area with dry bedding
- ❖ A stimulating environment with a variety of enrichment objects
- ❖ Adequate feeder space to enable all animals to eat at the same time
- ❖ Respect for the animals' routines (e.g. hierarchies, feeding times)
- ❖ A good level of positive and consistent human interaction

Notes



Recommended references

1. Phillips C (2002) *Cattle Behaviour and Welfare*, 2nd edition. Blackwell Science Ltd. Oxford.
2. Rushen J, de Passille AM, von Keyserlingk MAG, Weary DM (2008) *The Welfare of Cattle*. Springer, Amsterdam.
3. Webster J (1994) Cattle and other ruminants. In: *Animal Welfare - A Cool Eye Towards Eden*, pp167-179. Oxford: Blackwell Science Ltd.
4. Reinhardt V & Reinhardt A (2002) *Comfortable quarters for cattle in research institutions*. In: *Comfortable Quarters for Laboratory Animals*, 9th edn (V & A Reinhardt eds), pp 89-95. Washington DC: Animal Welfare Institute, www.awionline.org
NOTE: the 10th edition of *Comfortable Quarters* is under production at the time of writing.
5. FELASA (2007) *Euroguide on the Accommodation and Care of Animals Used for Experimental and Other Scientific Purposes: Based on the Revised Appendix A of the European Convention ETS123*. London: FELASA. www.felasa.org
6. Defra (2003) *Code of Recommendations for the Welfare of Livestock: Cattle*. London: Defra Publications. www.defra.gov.uk/foodfarm/farmanimal/welfare/onfarm/documents/cattcode.pdf
7. RSPCA (2008) *Welfare standards for Dairy Cattle*. Download from www.rspca.org.uk/sciencegroup/farmanimals/standards/dairycattle
8. RSPCA (2010) *Welfare Standards for Beef Cattle*. Download from www.rspca.org.uk/sciencegroup/farmanimals/standards/beefcattle



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