



# The Welfare of Beef Cattle



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Juvenile cattle at pasture

Domestic cattle are of great economic and cultural importance globally. Cattle are kept for a very wide range of purposes. In particular, cattle are reared for meat, dairy and other products (e.g. leather) and their dung can be used as fuel and fertiliser. In the developing world, they are also a key source of draught power. There are around 800 recognised breeds of domestic cattle worldwide. Breeds are often specialised for the production of either beef (e.g. the Limousin) or dairy (e.g. the Holstein-Friesian), although 'dual-purpose' breeds (for producing both meat and milk) also exist. In the UK, over 2.7 million cattle (which include steers, heifers, bulls, cows and calves) were slaughtered for meat in 2017 and over 40 million in the whole of Europe<sup>1</sup>.

## Beef cattle natural history and behaviour

According to genetic studies, all cattle (over 800 different breeds worldwide) are descended from as few as 80 different species that were domesticated from the wild ox, or aurochs, (*Bos primigenius*) of Europe. The earliest archaeological evidence of domestic cattle dates from 8,800 to 8,300 BC<sup>2</sup>. Aurochs were believed to be close to the size of elephants, and reportedly very aggressive in nature. As domestic cattle became more prevalent, the number of aurochs declined and the species became extinct in 1627.

The early distribution of cattle to different parts of the world led to the development of species adapted to their local environments. In the last 200 years, cattle diversity has been increased by systematic selection of isolated

populations that became the present breeds.

Today, there are only a few feral (wild) populations. Under natural conditions, cattle generally form groups of cows and calves, while bulls form bachelor groups and graze separately. Males associate with the cows when it is time to breed. The groups vary in size, but generally consist of about 20 individuals. Hierarchy plays an important role in the social behaviour of cattle to determine access to resources, such as feed. The maintenance of the social hierarchy is an important factor contributing to herd stability. Cows also have preferred social partners within their groups who they will stay close to whilst grazing or lying down. The gestation period of a cow is nine months. Calves tend to be weaned naturally from their mothers at around seven months after birth, but this can vary between individuals and breeds. This process is gradual and mainly consists of the mother rejecting the calf's attempts to suckle.

Visual, vocal and olfactory communications represent important means of communication in cattle. Being prey animals, their 330° panoramic vision is well adapted for survival, and represents about half the sensory information they receive from their surrounding environment. Vocalisation is used in recognition and eliciting contact, as well as greetings. During maternal licking, vocalisations help the calf to recognise the dam. Cattle have also a very acute sense of smell, which contributes to individual recognition and plays a role in social relationships.

Cattle generally fear novelty but adapt to a routine. They have good memories, and will be easier to handle when they had previous experience of gentle handling as opposed to rough handling.

Over a day, cattle on pasture spend a large proportion of their time engaged in three main behaviours: grazing (from 6.8 to 13 hours per day), ruminating (an important part of rumination is performed lying down as opposed to standing), and resting.

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## Commercial beef production

In the UK, over 2.7 million cattle were slaughtered for meat in 2017<sup>1</sup>. It is estimated that about half of the beef produced in the UK in 2017 originated from dairy herds<sup>3</sup>.

Beef cattle are usually kept in either 'extensive' grazing-based systems where they are mainly kept in fields and may be housed for part of the year, or in more 'intensive' indoor systems where, in some cases, cattle may be housed throughout their whole lives.

UK beef production includes two main farming methods: suckled calf production and finishing systems. Suckled calf production is where calves are reared by their mothers until they are weaned at around seven months of age and are then either finished on-farm, or sold for finishing elsewhere. Finishing systems buy-in animals either from suckler herds or dairy herds, but do not breed their own animals. Finishing animals are fed a specific diet (energy-rich finishing diet or a grass-finished diet) to get them to a particular liveweight and fat class prior to slaughter.

Traditionally, the beef and dairy industries have been linked, with unwanted male calves from the dairy industry bought by beef farmers to be reared for beef. However, because purebred dairy calves are not considered to be of high enough quality to be reared for beef, this is less the case today. This change resulted in many of the male dairy calves being killed on-farm or transported to the continent for further fattening as veal, often in systems that would not be legal in the UK. Although there are now some systems rearing male dairy calves for beef, further work is needed in this area.



A crossbred store animal

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## Production systems

### SUCKLED CALF PRODUCTION

In suckled calf production, cattle are kept on farm to breed and rear their calves 'at foot' until they are weaned. Once weaned, they are finished either on the farm or sold to another farm for further fattening. Suckler herds are usually kept outdoors for most of the year, and this sometimes includes the winter period. According to the Farm Animal Welfare Committee's '*Opinion on the welfare of cattle kept for beef production - 2019*', the use of suckler systems represents less than 50% of total UK beef production<sup>3</sup>.

In suckler systems, the indoor environment usually consists of straw-bedded yards and slatted floors to allow faeces and urine to fall through the slats into a tank located underneath. Cubicles are sometimes used as they allow reduced bedding costs and are generally easy to maintain. However, most cubicles have been designed for dairy cattle and are too small for beef cattle. The use of straw yards offer better comfort to beef cattle, and have been shown to be preferred by cattle<sup>4</sup>, thus better meeting the animals' behavioural requirements.

Although artificial insemination is widely used in cattle farming, breeding bulls are often still used within suckler systems. However, their nutritional and physical needs, which differ from cows', can be given less consideration, which represents a welfare issue.

### FINISHING SYSTEMS

Finishing systems either finish their own animals or buy-in cattle which can be pure beef breeds or beef cross animals. The cattle may be bought as calves (from seven days old upwards) for rearing, growing and finishing. Alternatively, they can be bought as 'stores' (weaned cattle) for growing and finishing, or only for finishing if bought at a later stage.

Finishing systems rear the calves until they achieve a suitable slaughter weight, fat class and body conformation. The finishing process consists of a short period where cattle are fed a diet designed to gain weight to meet a particular specification. There are many different types of finishing systems for beef cattle which depend on variables such as soil type, grass availability and cattle breed. They are generally classified into three different categories: intensive, semi-intensive and extensive. In intensive systems, the cattle (often beef-bred or dairy-bred entire males) will usually be fed with highly concentrated, cereal-based feed, therefore allowing better feed conversion and higher liveweight gains. This diet is however low in fibre and can therefore result in various health problems,

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such as acidosis or scouring (diarrhoea). These animals are typically slaughtered between 12 to 15 months of age. Semi-intensive and extensive systems are based more on forage and grass, and the cattle will be slaughtered between 15 to 20 months old in semi-intensive systems, and at more than 20 months old in some extensive systems. Different suckler cow breeds are better suited to certain production systems because of their differences in behaviour and physiology. Native breeds usually require a shorter finishing period than continental cattle, for example. Therefore, in extensive systems, certain breeds may undertake a 'store period', where they are usually fed on home grown fodder to achieve a weight gain of approximately 0.5 to 0.8kg/day before the finishing phase. This period allows the cattle to grow at a slower rate, and at a cheaper cost.

During the finishing period, cattle are usually raised indoors using a wide range of housing systems, such as straw yards or slatted systems. However, some farms allow the cattle to have access to outdoors.

## Key welfare issues

### CALF MORTALITY

Mortality is highest in the first six months of life. It is estimated that approximately 14% of dairy-bred and 8% of beef-bred calves die during the rearing phase (up to three months) in the UK each year. Scouring is a major contributor to this issue, as it accounts for about 50% of deaths, and respiratory infections can be particularly common in calves in the first five months of life. Good husbandry, hygiene and ensuring calves receive enough good quality colostrum are essential factors for successful calf rearing.

### HOUSING

According to the FAWC '*Opinion on the welfare of cattle kept for beef production*', the low profitability observed in beef cattle production often results in poor infrastructure investments<sup>3</sup>. Therefore, many units are old and not suited for rearing beef cattle. Older systems often have inadequate ventilation and drainage, which increases the risks of respiratory diseases.

In suckler systems, cows are often kept outdoors during winter and, although cows grow thicker coats during this time, a lack of shelter can negatively affect their welfare. The use of fully slatted indoor systems is still observed on some farms and, although it can be related to good performance, their use is often associated with high stocking densities and lack of enrichment. The use of straw-bedded yards offers better comfort to beef cattle, however, good management of such yards is required to avoid injuries, and to avoid them becoming wet and dirty.

## MUTILATIONS

### Disbudding

Most cattle are born with horn buds which have the capacity to develop into mature horns. Young animals can be disbudded (removal of the horn buds) to prevent the development of horns thus allowing easier management and to decrease the risk of injuries to herd mates or to the handler. Disbudding is usually performed by using a heated disbudding iron applied over the horn buds using a local anaesthetic. Currently, over 90% of UK herds are disbudded. A survey revealed that despite local anaesthesia being a legal requirement, some veterinarians have admitted not using any form of pain relief during this process<sup>5</sup>. Legislation allows unqualified persons to disbud calves of any age provided they use an anaesthetic. The RSPCA believes that all persons performing this (or any other) potentially harmful procedure must have proof of competency. Otherwise, it must only be performed by a veterinary surgeon. Currently, 92% of producers disbud their own animals and only about a third of those surveyed used pain relief<sup>6</sup>.

Evidence shows that calves can experience pain from disbudding for several days after the procedure. Use of longer-acting analgesic (pain relieving) drugs, as well as a short-acting local anaesthetic to alleviate the pain has been shown to improve calf feed intake and health in the days following disbudding. The RSPCA believes analgesics, as well as the use of anaesthetic drugs, should constitute a legal requirement.

Some cattle breeds don't develop horns and are known as 'polled' breeds (e.g. the Aberdeen Angus). There is the possibility of genetically selecting 'polled' breeds in order to eventually remove the need for disbudding altogether. However, this may take a long time because of the lack of availability of polled bulls to breed from.

### Castration

Entire bulls tend to grow more quickly and result in leaner meat. However, they are more dangerous to handle once sexual maturity is reached, therefore bull calves going to be reared for beef are usually castrated. Castration is mostly performed using physical methods, either surgically or by obstructing the blood supply to the testes and scrotum (using a rubber-ring method or the *Burdizzo* bloodless method), which then 'dry up' and drop off. These methods can lead to various health and welfare issues and can be performed by untrained staff on animals under two months of age.

The law requires that local anaesthetic is applied to any animal being castrated over two months old. As no pain

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relief is legally required for calves under two months old, it is usually not given. This may result in significant suffering both at the time of the procedure and in the following days. A survey conducted in 2017 on UK cattle practitioners found that only 20-30% of them were giving long acting pain relief after surgical castration<sup>7</sup>.

The RSPCA believes that all castration procedures should only be carried out by competent individuals and with pain-relieving drugs administered to each animal. Local anaesthetic should be used for all surgical castrations regardless of the age of the animal. The RSPCA believes that longer acting analgesic drugs should be given to any animal being castrated regardless of age or method of castration.

## LONG DISTANCE LIVE TRANSPORT

The long distance live transport of cattle raises significant welfare concerns. Transport represents a stressful experience for the animals, from gathering the animals, the loading process, to the journey itself and the unloading process. Cattle can legally be transported for 14 hours continuously followed by a rest/feed break of one hour, before another 14 hours of travel - totalling a maximum of 29 hours. Cattle imported for slaughter usually come from Ireland and Northern Ireland, which require a significantly shorter transport time than from other European countries.



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Beef cattle at pasture

## Work of the RSPCA to improve beef cattle welfare

### WELFARE STANDARDS

The RSPCA Welfare Standards for Beef Cattle is a key document through which the Society seeks to drive improvements in beef cattle welfare. The Standards are developed by the RSPCA Farm Animals Department on

the basis of scientific evidence and practical farming experience. They are regularly reviewed to ensure they remain relevant and up-to-date.

The RSPCA Welfare Standards for Beef Cattle must be adhered to by all producers who have beef cattle on their units and are part of the RSPCA Assured (previously Freedom Food) farm assurance and food labelling scheme. The Standards also help to improve beef cattle welfare more widely, as they act as a freely available good practice guide to higher welfare beef production that can be used by others, including any producer, retailer or farm assurance scheme.

Housing requirements and good practice management are key areas of the Standards. Cattle must be kept in well ventilated barns to prevent respiratory diseases and cannot be kept in a fully slatted system. They must be provided with plenty of space, with a bedded area. They must also be fed with adequate diets to meet their specific needs. A veterinary health and welfare plan written with a veterinary surgeon and/or other competent individual responsible for the animals must be in place for each herd. Regarding mutilations, the RSPCA requires the use of local anaesthesia for disbudding calves, and the procedures must only be performed by veterinary surgeons or by trained and competent staff. In addition, beef cattle cannot be transported for more than eight hours, and the Standards require cattle to be stunned before slaughter.

### CAMPAIGNING WORK

Our “Stop the Trucks” campaign aimed to end long distance live transport and improve enforcement of legal requirements for transporting animals, including cattle.

Our “Stun before Slaughter” campaign aims to ensure all animals are slaughtered humanely by being effectively stunned prior to slaughter, and we’re working closely with the British Veterinary Association on this matter.

Our “Labelling Matters” campaign, in conjunction with other NGOs, encourages governments, businesses and industry to adopt mandatory method of production labelling on all meat and dairy products across the UK and the EU, to enhance transparency and enable consumers to make better informed purchasing decisions.

### ADVOCACY WORK

The RSPCA Farm Animals Department advocates for improved beef cattle welfare through its membership on a number of multi-stakeholder working groups and

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committees. For example, the RSPCA is a member of the Cattle Health and Welfare Group (CHAWG) which seeks to prioritise, coordinate and assess the impact of national activities related to improving cattle health and welfare in Britain. It is also a member of the Genetics Advisory Forum, which aims to improve animal welfare through breeding programmes that have a greater focus on welfare attributes, as well as production attributes.

## RESEARCH PROJECTS

The RSPCA is a founding member of the AssureWel project, alongside the Soil Association and the University of Bristol. This project aimed to improve the welfare of farm animals by developing 'welfare outcome assessment' protocols for use during farm assurance scheme audits. Welfare outcome assessment protocols help farm assurance schemes to assess the level of welfare being achieved on their members' farms in more detail, allowing them to determine how successfully their welfare standards are being implemented by their members. A beef cattle protocol has been developed, and can be used in all beef cattle systems. Important parameters such as lameness, cleanliness, body condition score, hair loss, mutilations and mortality form part of the assessment.

## How you can help!



If you eat meat, eggs or dairy products and are concerned about animal welfare then look out for products carrying the RSPCA Assured logo. RSPCA Assured is the RSPCA's farm assurance and food labelling scheme that aims to ensure animals are reared, handled, transported and slaughtered/killed according to strict RSPCA welfare standards, developed and monitored by the RSPCA. The RSPCA welfare standards are informed by scientific evidence and practical experience.

If more consumers insist on higher welfare products, more supermarkets will want to stock them, which will encourage more farmers, hauliers and abattoirs to improve their practices and ultimately more farm animals will benefit.

Take part in the RSPCA's campaigns for farm animals by visiting [www.rspca.org.uk/campaigns](http://www.rspca.org.uk/campaigns).

## GLOSSARY

**Artificial insemination:** Artificial insemination (AI) is the process of collecting sperm cells from a male animal and manually depositing them into the reproductive tract of a female. In livestock farming, one of the advantages of AI is the ability to pass on desirable characteristics of a male animal more quickly and more often than if the animal is mated with females in a natural way.

**Bull:** A mature, uncastrated male bovine usually kept for breeding purposes.

**Calves:** Young cattle. Plural form of calf.

**Cow:** A mature, female bovine that has had at least one calf.

**Entire:** An animal that has not been castrated.

**Finishing:** The finishing period is when beef are fed an energy-dense diet so they grow rapidly, develop muscle and optimise fat cover in preparation for slaughter.

**Heifer:** A young female that has not yet had a calf.

**Liveweight:** The weight of the animal before slaughter.

**Steer:** A castrated, male bovine. Male bovines are usually castrated before they develop the bull's physical characteristics.

**Store animals:** Animals that require more growth to reach their finished slaughter weight.

**Weaned:** When a young animal stops feeding from its mother's milk.



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Grazing beef cattle

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## Recommended further information

- RSPCA website: <https://www.rspca.org.uk/adviceandwelfare/farm/beef>
- AHDB Beef and Lamb website: <http://beefandlamb.ahdb.org.uk/>
- EFSA 2012 - Scientific Opinion on the welfare of cattle kept for beef production and the welfare in intensive calf farming systems <http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2012.2669/full>
- CHAWG Fourth Report <http://beefandlamb.ahdb.org.uk/wp-content/uploads/2018/08/CHAWG-fourth-report-2018.pdf>

## References

<sup>1</sup> FAOSTATS. (2019) Production: Livestock primary [online]. Food and Agriculture Organization of the United Nations: Statistics Division. [Accessed 04.04.19]

<sup>2</sup> Ajmone-Marsan, P., Garcia, J. F. & Lenstra, J. A. (2010). On the origin of cattle: how aurochs became cattle and colonized the world. *Evolutionary Anthropology* **19**: 148-157.

<sup>3</sup> FAWC (2019) Opinion on the welfare of cattle kept for beef production.

<sup>4</sup> Lowe D.E. et al. (2001) Preferences of housed finishing beef cattle for different floor types. *Animal Welfare* 2001, 10: 395-404

<sup>5</sup> Remnant et al. (2017) Clinician attitudes to pain and use of analgesia in cattle: where are we 10 years on? *Vet record*. 2017 Oct 14;181(15):400. doi: 10.1136/vr.104428

<sup>6</sup> Cozzi et al. (2009) Report on dehorning practices across EU member states. Alternatives to castration and dehorning.

<sup>7</sup> Remnant, JG., Tremlett, A., Huxley, JN., Hudson, CD (2017) Clinician attitudes to pain and use of analgesia in cattle: where are we 10 years on? *Veterinary Record* **181**, 400.