Technical briefing
The Use of Farrowing Crates in the United Kingdom

Humane World for Animals' vision for the welfare of sows and piglets:

- **Future pig farming in the United Kingdom will not use conventional farrowing crates or other confinement systems and will instead place animal welfare and health at its core.**
- **Sows and gilts will be able to give birth to and raise their young in enriched environments, without close confinement, where the biological and welfare needs of both the sows and their young are met.**
- **Farrowing crates and temporary crates will have been completely phased out across the country and replaced with advanced housing designs and improved management practices that have been scientifically shown to deliver better animal welfare while keeping stock people safe.**
- **Within these crate-free farrowing systems sows will enjoy more space, have freedom of movement and access to nesting materials, and be able to express their full range of maternal behaviour with carefully designed features to protect their piglets.**

1. Introduction and legal context

Of all farming systems in the United Kingdom, farrowing crates cause the greatest degree of individual confinement. They were introduced to confine the sow to prevent her from accidentally injuring her piglets, who when very young can have difficulty getting out of her way. They are used to individually confine gilts and sows one week prior to giving birth, during labour, and through lactation, typically amounting to a five-week confinement period. This can occur 2-3 times each year.

Measuring approximately 2 meters long and between 0.45 and 0.65 meters wide with a footfall (area) between 0.9 and 1.3 square meters,[1] the crates allow the sow to stand up and lie down (often with difficulty) but prevent her from turning around or moving freely to explore her environment and interact with her young.

It is estimated that in the UK 60% of breeding sows were kept in farrowing crates in 2019, meaning over 200,000 sows are confined in this way annually.[2]

The key pieces of legislation in the UK relating to farrowing crates and temporary crates are:

a) Animal Welfare Act 2006 ("AWA");

b) Animal Health and Welfare (Scotland) Act 2006 ("AHWSA");

c) Welfare of Animals Act (Northern Ireland) 2011 ("WAANI");

and the following legislation that transposed and implemented the Pig and Farming Directives:

a) Welfare of Farmed Animals (England) Regulations 2007;

b) Welfare of Farmed Animals (Wales) Regulations 2007;

c) Welfare of Farmed Animals (Scotland) Regulations 2010; and

d) Welfare of Farmed Animals Regulations (Northern Ireland) 2012; collectively ("WOFAR").

Prior to Brexit, the EU directives (the Pig Directive and Farming Directive) were transposed to apply in the UK under WOFAR.

WOFAR clearly permit farrowing crates and temporary crates.[3] Although these systems would appear not to be legal under the AWA (on the basis that they cause unnecessary suffering and do not meet the needs of pigs in respect of their environment and protection from suffering and pain), they are legal in UK law under WOFAR.

Several countries, including Sweden (1987), Norway (2000) and Switzerland (1997) have banned farrowing crates.[4] Others, such as Germany and Austria, have taken steps to adopt partial bans that significantly reduce the length of the confinement period.[5]

2. Welfare issues with farrowing crates

Free range outdoor pigs and wild boar build nests with straw and leaves for the birth of their young. They prefer a secluded, sheltered location.[6] In nature, a warm, protected nesting site improves survival of the piglets, and so nesting behaviour is highly evolutionarily conserved (meaning sows have retained this instinct throughout evolution). Multiple studies have demonstrated that sows prefer to nest in an enclosed, generously bedded farrowing site.[7,8,9] The biological drive to build a nest persists even in a commercial production environment. Sows in intensive confinement operations attempt to perform nesting behaviour—pawing the floor and nosing the bars of the crate.[10,11,12,13]

There is a link between nesting behaviour and the hormones that regulate maternal behaviour and lactation. Oxytocin is a pituitary hormone that modulates maternal behaviour and regulates uterine contractions during birth and milk letdown after piglets are born. It is also an important hormone for forming attachments and for mothering and nurturing behaviour. Sows unable to engage in normal nesting behaviour before farrowing have lower levels of oxytocin in blood samples prior to and after farrowing.[14,15] The inhibition of oxytocin prolongs farrowing duration,[16] which can result in more stillborn piglets in farrowing crates.[17,18,19]

Prevention of natural nesting behaviour is also stressful. Sows have higher heart rates[20] and elevated stress hormone (cortisol) concentration when prevented from nestbuilding.[21,22,23,24]

Sows have been selectively bred to be significantly larger (to carry larger litters), than when crates were designed. Sows are now up to 202cm long (average 193cm), 48cm wide at the shoulders,[25] against a crate size of approximately 200cm long and 45 - 65cm width, and so the relative space available to them is now even less than it was a few decades ago.

To increase their productivity, female pigs used in intensive farms have also been bred for larger litter sizes. As a result, their young are often smaller and not as strong; not all piglets can suckle simultaneously and underweight piglets more susceptible to common causes of death such as hypothermia, starvation, asphyxiation and physical trauma. Litter size is

frequently shown to be the main predictor of piglet mortality rates.[26]

Crated sows have around double the number of stillborn piglets, release less milk, their piglets have poorer teat access, are more likely to die of starvation, and have lower weaning weights.[27,28,29] As such, total piglet mortality is generally equivalent, and frequently lower, in free farrowing systems compared to crates.[30,31] For instance, the inter-piglet birth interval (IBI) (the farrowing duration per piglet) can be up to 4 min shorter in farrowing pens compared to crates, which reduces the risk of stillbirth.[32]

Sows have been bred to produce 2.25 litters per year,[33] which means the typical sow spends 80 days per year, equivalent to 22% of her adult breeding life, confined in a farrowing crate. Sows that are used to foster other piglets, after they've weaned their own, can spend an even longer proportion of their lives in this strict confinement.[34]

Pigs are sentient beings and very intelligent animals. Because the confinement of sows in farrowing crates severely restricts their freedom of movement and prevents them from performing natural behaviour, particularly highly motivated maternal behaviour, farrowing crates are extremely detrimental to their welfare.

As a nation priding itself on its high animal welfare standards, it is therefore critical that the UK commits to phase out farrowing crates and adopt safe and humane free-farrowing pig production systems.

3. Welfare issues with temporary crates

A temporary crate (also called a flexible or adaptive crate) is a farrowing system that has some means of confining the sow, but which can be adjusted or opened up to give the sow more room to move. Temporary crates vary in design and size, with some covering a similar footprint as a conventional crate (such as the 360 Freedom Farrower)[35] and others several square meters larger.[36] Currently these systems are not being widely used in the UK, but they are designed to be able to confine the sow to the same degree as a conventional crate.

There is no veterinary and industry consensus regarding how long sows should be confined in temporary crates, but industry is suggesting that farmers should be able to confine sows from just before they farrow and then for several days post farrowing.[37]

Some industry groups have recently begun advocating for a gradual transition from conventional crates to temporary crates, arguing that temporary crates improve sow welfare with minimal impact on piglet mortality and without putting stockpeople at risk.[38] We do not agree that temporary crates are a good alternative to farrowing crates for several reasons.

Temporary crates do not meet a sow's welfare needs

Strict confinement when a sow farrows prevents her from:

- building a nest;
- moving during farrowing to improve comfort and aid delivery;
- interacting with her piglets;
- moving away to avoid aggression during milk consumption;[39] and
- adequately regulating her body temperature.[40]

Sows' stress responses also tend to be higher in crates compared to free farrowing pens.[41]

There would be no mechanism for ensuring that sows were released from confinement

Industry groups have suggested that farmers wishing to release all sows at the same time

should be permitted to confine sows for up to 10 days (as sows may farrow several days apart).[42] This significant period of confinement would be very detrimental to sow welfare. We are also concerned that lack of oversight could result in sows being confined for the whole lactation period, particularly where farmers are reluctant to adapt their husbandry practices. Anecdotal reports from the Netherlands suggest this may be an issue there.

Temporary crates can increase piglet mortality

According to the European Food Safety Authority (EFSA), '…it is possible to achieve the same piglet mortality in a system where the sow is never crated as with permanent crating'.[43] However they report from experimental studies that giving sow full freedom in a pen designed for temporary crating results in an increase of piglet mortality (by 24%).

EFSA asserts that well-designed temporary crates that minimize piglet mortality should have a similar footprint to a free farrowing pen, meaning any costs associated with adapting infrastructure would be similar. In fact, the materials to install a free farrowing pen often cost less than temporary crates, so overall costs may be lower when installing free farrowing pens compared to temporary crates with adequate space allowance.

Relatedly, converting to temporary crates is likely to be a poor long-term investment. The European Food Safety Authority (EFSA) has advised farmers against installing temporary crates as a step towards free farrowing unless the size of the temporary farrowing crate system is the same as that of the future free farrowing pen.[44] The public is increasingly calling for the adoption of crate- and cage-free farming practices,[45] making temporary crating an expensive detour.

4. Recommendations for crate-free farrowing standards

This section provides Humane World for Animals' recommended specifications for free farrowing systems that meet the welfare needs of sows and piglets while minimising risk of injury to piglets and stock people. The Annex also includes some notes describing considerations for the transition while making the required changes to pig housing systems.

4.1. Housing design and size

4.1.1 Farrowing pens

Periparturient and lactating sows should be housed in farrowing pens (not in conventional farrowing crates or temporary crates).

4.1.2 Space allowance

The minimum available space for the lactating sow in a farrowing pen should be 6.6 m^2 with additional space for piglets equating to ~ 7.8 m^2 total pen size.[46]

The minimal space for the sow of 6.6 m^2 is important to achieve comparable piglet mortality to a farrowing crate system. Reducing the pen space will lead to a higher risk of piglet mortality, if the sow is not crated. E.g., if a sow has only 4 m^2 available (approx. 5.2 m^2 total pen size) mortality can be 1.42 times that of a permanent farrowing crate.[47]

4.1.3 Piglet protection

Farrowing pens must have some means of protecting the piglets, such as farrowing rails, to prevent piglet mortality due to crushing.

4.2 Flooring

Floors should be smooth and maintained to not be slippery; and should include a solid area to facilitate the provision of bedding, nesting or enrichment substrates.

4.2.1 Area with bedding (piglets)

Piglets should be provided with a bed made of straw or other suitable materials, large enough for all piglets in a pen to lie down at the same time.

Objections on the use of some bedding materials, with regard to the potential blockage of slurry systems, are often voiced. However, many farmers do not encounter such problems, and this can be solved either through technology or adapted design, as countries, such as Sweden, have shown.

4.2.2 Bedding quality

Bedding choice should consider hygiene and quality criteria to avoid biosecurity risks**.** The best way to ensure this is to obtain materials from a reliable and traceable source.

4.2.3 Area of solid floor

At least 60% of the floor of the enclosure should be solid (not slatted or grid).[48]

The hygiene of the solid flooring area is also important. This is influenced by the proportion of solid to slatted flooring, as well as pen layout, the nature of the airflow patterns and ambient temperature.

4.3 Environmental enrichment

4.3.1 Provision of enrichment

Sows and gilts should be provided with material enabling nest-building behaviour in the week before the expected farrowing time.

4.3.2 Quantity and type (sows)

The quantities and types of materials provided must enable a variety of behavioural elements of nest-building behaviour to be performed at a functional level.

4.3.3 Timing of provision

After farrowing, sows and piglets should have permanent access to manipulable material.

4.3.4 Quantity and type (piglets)

The quantities and types of enrichment materials provided must enable proper investigation and manipulation activities.

4.3.5 Enrichment quality

Choice of enrichment materials should consider hygiene and quality criteria to avoid biosecurity risks.

Objections on the use of particulate enrichment materials with regard to the potential blockage of slurry systems are often voiced. However, many farmers do not encounter such problems, and this can be solved either through technology or adapted design, as countries, such as Sweden, have shown.

Annex: Transition notes

A roadmap on the key decisions regarding transitioning from crates to free farrowing has been published by Baxter et al. (2022).[49]

The Freefarrowing.org website brings together scientific and best practice advice from various sources on optimal design features for farrowing pens (including, piglet protection, pen partitions, piglet creeps, flooring, feeder and drinkers).

Key considerations are the space requirements for free farrowing systems and whether flooring must be adapted.

The typical 4.5 - 5 m² size of crated systems needs to be enlarged to 6 - 8 m² per sow in free farrowing systems, which can increase housing costs considerably. It may be difficult to build new pens in existing buildings, because of the new pen size and the location of slurry pits. Where buildings must be extended or new buildings erected, the time and cost associated with securing planning permission must be considered.

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