



FVE position paper on moving towards more welfare-friendly farrowing systems

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Summary

Farrowing crates were introduced in the 1960s to reduce piglet mortality, but they significantly restrict the innate behaviour of the sow and impair her welfare. There is an urgent need to move towards more welfare-friendly and sustainable husbandry systems, that are conserving resources, environmentally non-degrading, technologically appropriate, economically viable and socially acceptable for farrowing and lactating sows which better safeguard the welfare of both sows and piglets. Alternative husbandry systems are available and in place in various European countries, but some also pose challenges. Therefore, good planning is necessary between the farmer and their veterinarian to ensure the right system and management is chosen. An acceptable (not excessive) transition time needs to be set, potentially with intermediate steps. Support should be given to farmers to achieve this necessary change.

Context

Animal welfare is an essential aspect of sustainable livestock production systems. Besides the ethical responsibility to the animals, consumer expectations have increased towards animal welfare. Animals are expected to be kept in environments in which they can cope, be free from unnecessary suffering, be able to express important behaviours and not suffer from frustration and boredom. In general, the environment should be designed to fit the needs of animals, not the other way around.

The concept of animal welfare is also changing – from a sole focus on freedom from negative experiences, to also include positive experiences. We need to move towards systems where animals not just survive but are able to experience a Good Life (Mellor 2016, Webster 2016). The European Commission set out a commitment to come up with a legislative proposal by 2023 to prohibit cages for a number of farm animals, including farrowing sows, as part of the ongoing revision of the animal welfare legislation under the EU's flagship food policy, the [Farm to Fork Strategy](#) in response to a European Citizens' Initiative (ECI), "[End the Cage Age](#)", which gathered more than a million signatures calling for a transition to a cage-free farming system.

This change requires the veterinary profession to review current animal husbandry systems and practices. The veterinary profession is in a unique position to motivate and support farmers, using a veterinary-led team in collaboration with other professional farm advisors, to move towards improved housing systems that are practical, economically viable and superior in terms of improving animal health and promoting positive welfare states. This is the case in respect to farrowing systems used in pig farming.

Practices around farrowing in EU pig farming

In most EU countries, farrowing crates are widely used in pig husbandry. Sows are typically moved into the farrowing crates around five days before the expected farrowing date and stay there for around 4-5 weeks until the piglets are weaned. The size of a farrowing crate

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is on average 2.2-2.4 m length x 1.8 m wide (part is for piglets, part for sow). Farrowing crates were first introduced in the 1960s to reduce the number of piglets accidentally crushed, to provide farmers safe working access to the piglets, to reduce space requirements, and facilitate labour services (Edwards and Fraser, 1997).

According to EU legislation (CD 2008/120/EC), pigs have to be group housed. Sows can only be kept in farrowing crates one week before farrowing until four weeks after service (Art. 4). This means that usually they stay in the crates until weaning of the piglets (at least 28 days). Nursing sows, which are more commonly used due to hyperprolific breeding strategies, stay longer in the crates, due to weaning of more than one litter.

Major efforts have been made in several European countries to improve the welfare of the sow around the service period. Switzerland, Norway and Sweden banned farrowing crates completely, however, temporary confinement of sows for specific purposes is allowed. Austria and Germany phase out the use of permanent farrowing crates after the first days of the critical period for piglet survival (usually around 5 days) and farrowing pens must then have at least 5.5 m² or 6.5 m² of space, respectively. The Austrian study ProSau showed, that the confinement of the sow until the fourth day of piglets' lives was an effective measure to reduce piglet losses. Confinement of the sow for more than four days did not offer further advantages (Heidinger et al., 2018).

Problem statement

The use of farrowing crates has come under heavy scrutiny because it significantly impairs the welfare of the sow and restricts her important innate behaviours. They also pose welfare problems for the piglets, particularly at birth, due to the prolonged farrowing time.

Why?

FOR SOWS:

- Scientific studies have found that sows have a strong instinct to build a nest before parturition, triggered by internal hormonal factors. The crating in pens without the possibility to collect nest building material restricts the sows' innate nest building behaviour. This may cause an increase in physiological stress, resulting in a decrease in endogenous hormones, especially oxytocin, which affects the sows' reproductive and behavioural characteristics (Lawrence et al., 1994).
- The lack of nest building material and the lack of the ability to leave the nesting area has been reported to cause stereotypies like bar-biting in a significant number of sows (Damm et al., 2003a; Damm et al., 2003b).
- Pigs normally do not defecate in their sleeping area. The lack of the ability to leave the nesting area causes less defecating behaviour and increases the risk of constipation, which is one of the risks for the inflammation of the uterus and the udder (MMA-Complex, Mastitis, Metritis, Agalactia) (Eich, K.-O., 1982, Schnurrbusch U., 2006). Other reasons for constipation are lack of movement and too low fibre amount in the feed.
- Farrowing crate systems do not meet the thermoregulatory requirements of the sow as the environment is generally regulated to the ideal temperature for the piglets. This induces heat stress and increases the risk for restlessness and repeated laying down of the sow.
- Ideally sows should also be able to shortly move away from her piglets.

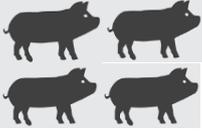
FOR PIGLETS:

- An increased risk of stillbirth due to prolonged farrowing which can lead to hypoxia at birth is seen in most crating systems as they restrict sows' innate nest building behaviour.
- Increased risk of mismothering mainly due to an increase in physiological stress, resulting in a decrease in endogenous hormones, especially oxytocin, which affects the sows' reproductive and behavioural characteristics (Lawrence et al., 1994), Baxter et al., 2018; Yun and Valros, 2015).
- Lack of space around the udder can give difficulties to access the teats, resulting in fighting for teats (lesions in face and joints) and unstable teat order (poor growth, more vulnerable to illness). Larger litters and potential mastitis enhance the teat fights.
- Lack of enrichment opportunities - the crates are commonly built on fully or partially slatted floors which can hamper provision of some enrichment materials (particularly straw).
- The thermoregulatory capacity of neonatal piglets is limited and farrowing crate systems generally do not provide a restricted, heated and isolated area for all piglets which causes difficulties for the piglets to keep warm.

These welfare problems are summarised in a recent review by the European Union Reference Centre for Animal Welfare - Pigs (EURCAW-Pigs) (see Box 1)

Box 1. Summary of the shortcomings of farrowing crates (adapted from EURCAW-Pigs)

	<ul style="list-style-type: none">• Stress → inhibits the production of hormones (especially oxytocin) involved in farrowing ↓ Maternal behaviour not fully developed + Increased farrowing time (risk of hypoxia and stillbirth) + Lactation onset difficulties, mismothering → stereotyped behaviour (bar-biting)• Reduced physical activity leads to an energy imbalance due to the insufficient stimulated feed intake as opposed to the vast mobilisation of energy and minerals to meet the milk requirement of a hyper-prolific sow's litter. Ultimately, this leads to a less favourable body condition, including impaired cardiovascular fitness and a decrease in muscular tone → associated to shoulder lesions• Restriction of movement (resting, getting up and laying down) → Claw & leg lesions• Udder and teat lesions (if not enough space is provided for the piglets)• Thermoregulation is hindered as they can't move to a cooler area → heat stress → less desire to eat → reduction in milk production (ultimately, starvation of piglets)• Constipation (sows do not defecate in nesting area) → Increase in stillborn piglets, but as well in mastitis
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	<ul style="list-style-type: none"> ○ Lack of space (sow size has increased overall while pen size has typically stayed the same) around the udder difficulties access to teats, resulting in... <ul style="list-style-type: none"> ○ teat fighting (lesions in face and joints) ○ unstable teat order (poor growth, more vulnerable to illness). ○ General lack of space → difficulties thermoregulating
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Piglet mortality and farrowing systems

In spite of increasing litter sizes in hyper-prolific sows, there have been no significant improvements in piglet mortality over the last 30 years, with total mortality (i.e., stillborn and live-born deaths) per litter averaging between 16% and 20% (Baxter and Edwards, 2018). The reasons behind piglet mortality are multifactorial, with both housing and management aspects that need considering (Kielland et al. 2018). However, the recent focus on genetic selection strategies to increase litter size (from 10-12 piglets to 14-16 piglets per litter) has hindered progress in reducing piglet mortality. In countries where high total litter sizes are now common as a result of genetic selection for prolificacy, the level of piglet mortality has also increased in percentage terms and therefore even more so in terms of absolute numbers of individual animals (Baxter and Edwards, 2018). An increased litter size has also led to a decrease in the proportion of weaned piglets and a larger variation in quality of piglets (Andersson et al, 2016).

Comparative studies show that some alternative farrowing systems have yielded higher mortality than conventional crate systems (Baxter et al., 2011). A temporary fixation for a few days after birth was shown to be sufficient to significantly reduce piglet crushing without impeding the sows activity in the first 72 h after birth (Nicolaisen et al., 2019), while it has been possible to achieve comparable survival in the majority of studies (Weber et al., 2007; Edwards et al., 2011; Olsson et al. 2018; Baxter et al., 2012). This was confirmed by a recent meta-analysis, which summarised the results of publications on direct comparisons between conventional crates and loose-housed farrowing pens. Though the relative risk of piglet mortality was 14% higher in farrowing pens than farrowing crates, there was no effect of housing type on the number of piglets born alive or the number of piglets weaned. Overall, the type of farrowing accommodation did not affect the number of stillborn piglets (Glencorse et al., 2020). Sows that only experienced farrowing in alternative systems perform better than sows that experienced crating before (Olsson et al., 2018).

In a review EURCAW report (2020) concluded that well-designed pens are at least 6-7 m² with division of space into functional zones, opportunities to provide functional nest materials and design features to increase piglet viability and thus protect them from being crushed (Weber et al., 2009; Baxter et al., 2011, 2012; Pedersen et al., 2013; Bolhuis et al., 2018). Testing loose farrowing pens measuring 5 m² or less, Blackshaw et al. (1994), Marchant et al. (2000, 2001) and Kamphues et al. (2003) found that pre-weaning mortality was markedly higher in non-crating systems than in crated systems, whereas piglet mortality did not differ significantly between loose farrowing pens and conventional crates in several studies with larger pens (Cronin et al., 2000; Weber, 2000; Weber et al., 2007). Thus, providing the sow a sufficiently large and appropriately designed farrowing pen enables it to differentiate between a nest site and a dunging area (Schmid, 1992; Pajor et al., 2000), which seems to be a prerequisite for good production results, (EFSA, 2007). A new generation of designed pens is showing promise for a way forward.

Need to go towards a system safeguarding the welfare of both sow and piglets

There is an urgent need to move towards more sustainable husbandry systems that are conserving resources, environmentally non-degrading, technologically appropriate, economically viable and socially acceptable for farrowing and lactating sows which

safeguard the welfare of both sow and piglets. Alternative housing systems should also be safe for the stockmen and allow for temporary restraining of the sow for specific purposes e.g. cleaning of the pen and to give veterinary treatments. This is especially the case as sows which have strong mothering abilities show increased protective behaviour.

Alternative husbandry systems are available, but also pose challenges, especially because they are new and insufficiently tested on farms. Furthermore, new housing systems require changes in management and not the least a larger footprint. Therefore, good planning, preparation and knowledge sharing is necessary between the farmers, official advisory companies and their veterinarians to ensure the right system and management is chosen. Veterinarians are educated to look in a holistic way; taking into account factors including animal health, welfare, biosecurity, food production, food safety, productivity, and environmental aspects.

Points to take into account:

- For a system to be sustainable, it needs to be economically viable, practical and safe for the farmer to work with, and ethically acceptable to consumers and society. Farrowing crate systems do not maximise unconditionally the productivity but present as well major drawbacks.
- Alternative systems have to guarantee the safe interaction of stockpersons and temporary staff such as inseminators and veterinarians with the animals in order to perform necessary and inevitable treatments for maintaining their health and welfare.
- Care should be taken that newly advised systems are evidence-backed, future-proof, adapted for on-farm use, and meet animals' physical, mental and behavioural needs. Particularly pen types with heated areas that are inaccessible for the sows were shown to be highly beneficial.
- It is imperative to provide enough enrichment materials, to allow and stimulate nest building of sows and exploration by piglets.
- Thermoregulation of the sow and piglets is very important as both have very different thermal needs; with piglets needing a higher temperature and sows a lower. It is essential that piglets have a dry, warm place, especially immediately after birth. Enrichment e.g. paper or straw can be used as well for isolation of the nesting area
- Genetics are crucial key criteria – attentive, docile sows with a favourable body condition and good mothering abilities and who give birth to robust piglets should be preferred. There is an urgency to follow a more balanced selection policy incorporating body condition, maternal behaviour, piglet survival and docility traits as opposed to carcass yield only.
- Transition can be stimulated through different means, for example:
 - Funding more welfare-friendly housing systems, e.g. through the Common Agricultural Policy, farm assurance schemes, national government. Moving from a current farrowing pen of 4.3 m² to the recommended at least 7 m² needs considerably more space and new or adapted buildings.
 - Harmonisation of EU regulation with respect to housing of farrowing and lactation sows to ensure a common standard within the European countries.
 - Continuing to promote consumers valuing animal-derived food, reflected in fair prices that support a Good Life and humane death for farmed animals. Intrinsic motivation – often financial – should be created in the market to stimulate change at farmers level.

- Government support for pilot projects, education and awareness programmes focussed on engaging farmers and veterinarians to participation and education
- An acceptable (not excessive) harmonised transition time needs to be set, potentially with intermediate steps. Progress should be advanced as soon as possible to outline what that transition time could be, and what intermediate steps will be taken. Awareness programmes focussed on engaging farmer participation should be established.

Role of vet profession and way forward.

The veterinary profession should take a leadership role in the transition from farrowing crates to alternative systems – providing guidance on improving the welfare of sows and piglets and by contributing to development of better alternatives. Collaboration between researchers, industry, authorities, and the veterinary profession to promote free farrowing is crucial.

Veterinary authorities should use their competencies in animal welfare to promote this change. Veterinary practitioners should advise and support farmers how they can move towards more sustainable farrowing systems, while veterinary associations should promote sustainable animal husbandry systems at the societal level, e.g., with the media and politicians (AVMA/FVE/CVMA 2020, EP 2020).

The European Union Reference Centre for Animal Welfare - Pigs (EURCAW-Pigs) mandate and budget should be extended to enhance collaboration with veterinary practitioners. They can help to evaluate and assess new farrowing systems including comparative costs and how to manage them and give guidance to farmers regarding investment in practical, suitable new systems.

FVE promotes regular veterinary visits to all establishments with animals. The new Animal Health Law, which came into force in 2021, makes regular veterinary visits obligatory for all farms.

Citizens, NGO's and some retailers are pushing for non-crating farrowing systems. Veterinarians should lead on this transition as the leading advocates for the good welfare of animals in a continually evolving society (FVE/AVMA/CVMA paper).

Suggested sources of more information on alternatives to farrowing crates:

- <https://www.eurcaw.eu/en/eurcaw-pigs.htm>
- <https://www.freefarrowing.org/>
- <https://pigresearchcentre.dk/>

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