COMPASSION in world farming Food Business

MULTI-STAKEHOLDER ACTION PLAN

Scaling up Alternative Indoor Farrowing For Sows in the UK

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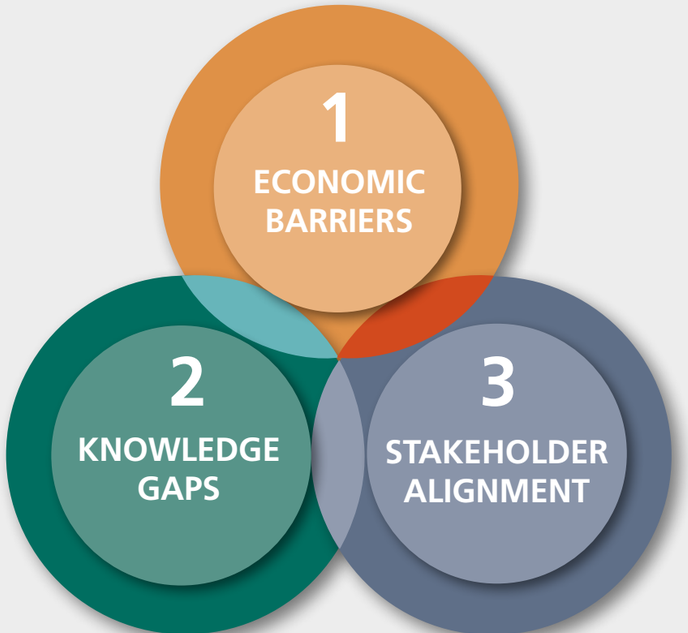
CONTENTS

SUMMARY

A successful transition to alternative indoor farrowing systems can be achieved if each stakeholder in the supply chain is encouraged and enabled to transition to and promote alternative farrowing. A move away from farrowing crates can be led by legislative reform or, in its absence, through voluntary commitments and standards, supported by consumer purchasing choices and/or raising of baseline standards by food companies and assurance schemes. Collective action is required, and the entire supply chain needs to be on board for such a transition to be successfully implemented.

This Action Plan highlights the barriers preventing alternative indoor farrowing systems from being implemented at scale in the UK and details key actions stakeholders can take for a successful transition away from farrowing crates.

Three main challenges to implementation of alternative farrowing



GLOSSARY OF TERMS

Throughout this Report the following terms are used to describe different indoor farrowing systems:

- **Free farrowing pens:** Indoor farrowing systems which allow freedom of movement at all times and do not confine the sow, except for management purposes only (less than 1–2 hours).
- **Temporary crates:** Indoor farrowing systems which allow for the temporary confinement of the sow, particularly around farrowing (usually 3–7 days).
- **Alternative farrowing systems:** Generic reference to both types of farrowing systems above, without differentiating design or level of temporary confinement.
- **Farrowing crates:** Conventional, indoor farrowing systems where the sow is confined in a farrowing crate several days prior to farrowing until she is weaned (a period lasting ~ 4–5 weeks).

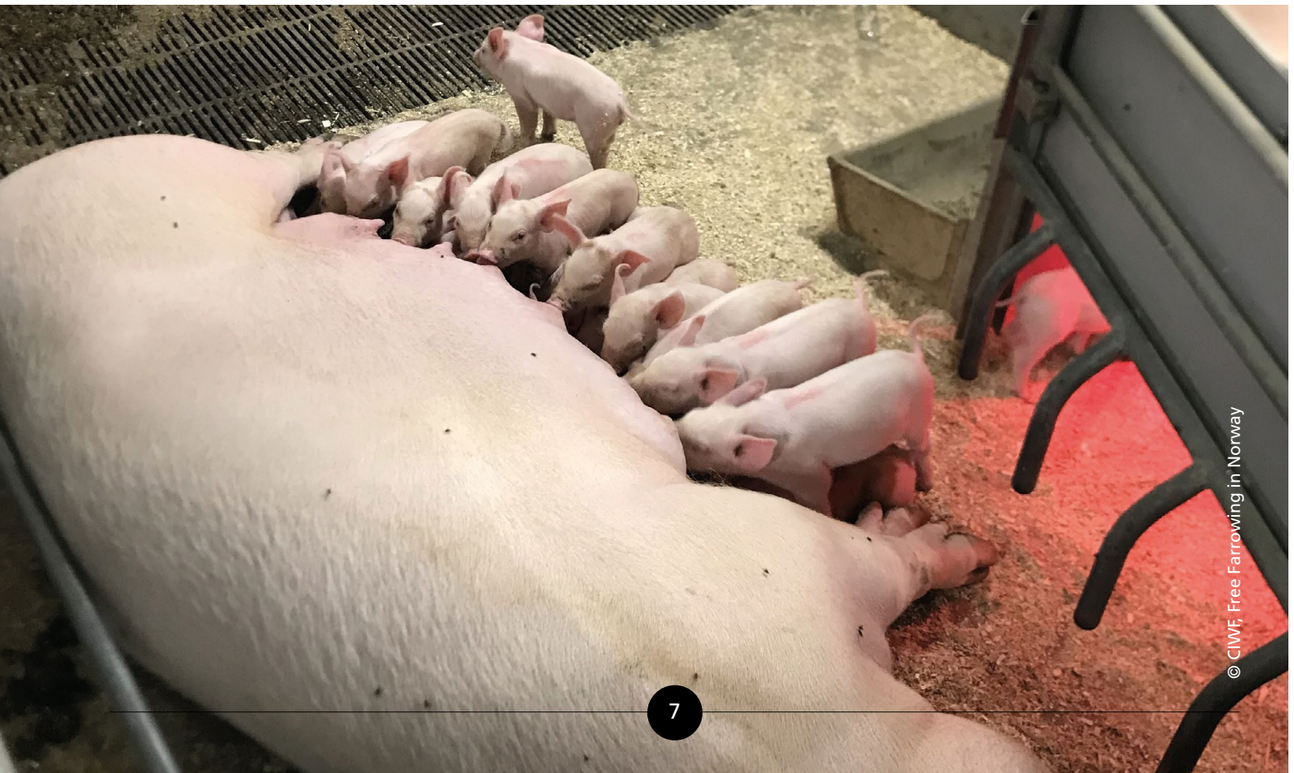
INTRODUCTION

UK Pig Production

In 2023, the national UK sow herd consisted of 337,933 sows and gilts[i] of which 40% (135,173 sows) were kept outdoors and were therefore not confined during farrowing and lactation. The remaining 60% (202,760 sows) were kept indoors, with the majority transferred to farrowing crates from approximately 5 days pre-farrowing until their piglets were weaned at approximately 21–28 days of age.

A sow typically has 2.3 litters per year, and so would spend 22% of the year confined in a farrowing crate. In 2018, there were 800 farms in the UK with over 100 breeding sows and an average 500 sows per farm. With 60% of the UK sow herd indoors, approximately 480 breeding farms would be affected by a change in the use of farrowing crates (1).

[i] Livestock populations in the United Kingdom, 1 June 2023 - GOV.UK (www.gov.uk)



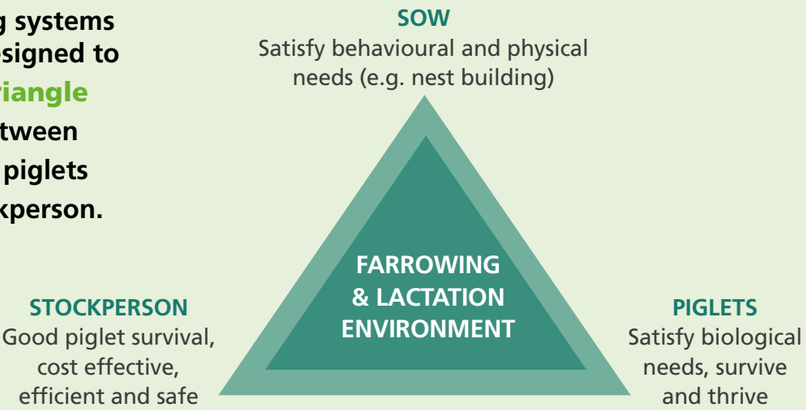
Farrowing Crates

Farrowing crates were introduced in the 1960s to reduce piglet mortality due to crushing, by confining the sow throughout farrowing and lactation.

Crates are considered to be economical due to their limited size, typically a 1.23m^2 crate within a 3.5–4.5m^2 pen per sow and litter (2–6). As the sow is confined, crates also allow for safe and easier working conditions and handling of piglets. Crates generally have fully or part slatted floors and no bedding, to maintain hygiene. However, there is a substantial body of scientific evidence demonstrating the negative effects of farrowing crates on the biological needs and welfare of sows and piglets. Subsequently, there is a growing body of scientific evidence and best-case examples on key design features of alternative farrowing systems to meet the needs of the sow, her piglets and the stockperson (3–8).

Farrowing Systems

All farrowing systems should be designed to satisfy the triangle of needs between the sow, her piglets and the stockperson.



Sow and Piglet Welfare

Crates severely restrict the sow's movement, preventing the most basic behaviours such as walking and turning around, but also limiting highly motivated behaviours such as nest-building, exploration and bonding with the piglets, all of which leads to physiological and psychological stress, and negatively impacts welfare (2, 8–18).

In addition to confinement, appropriate nesting substrate is not always provided on fully or partially slatted floors as they block the drainage system, further inhibiting the performance of behaviours such as rooting, digging and nest-building (2). Red Tractor standards require that sows and gilts are given suitable nesting material (e.g. straw, wood shavings, shredded newspaper etc.) to satisfy nest-building behaviour in at least the 24 hours before expected farrowing (19). Nest-building behaviour is a highly motivated, innate behaviour which affects the release of maternal hormones, helps to prepare the sow for farrowing and can influence a sow's maternal behaviour (15–17). Sows have also been found to be more active and perform fewer abnormal behaviours, such as sham chewing and biting fixtures, in free farrowing pens compared to crates (20). Piglets also lack enrichment and opportunities to play and root, as, like nesting substrate, enrichment substrates can block the drainage system if used on slatted floors (2,9,11,21,22). Red Tractor standards require permanent access to environmental enrichment in farrowing crates. Enrichment substrates classed as 'optimal' may be used alone (e.g. straw, silage, or grass cuttings), 'suboptimal' materials (e.g. wood shavings, shredded paper, hessian sack/pieces) must be used in combination with other materials and 'marginal' materials (e.g. chain, rubber, football) may only be provided with either 'optimal' or 'suboptimal' enrichments (19).

Piglet mortality is a significant concern to producers when considering alternative farrowing systems. Although some reviews have reported higher piglet mortality in alternative farrowing systems (4,23,24), others have found that the use of free farrowing pens can result in the same or lower, piglet mortality (25–29) and that piglets are at increased risk of still birth in farrowing crates (23). There is evidence that alternative farrowing systems provide benefits for piglet growth and cognitive development (29–31), sow hormonal status, ease of farrowing (32) and colostrum quality (33). Farmer experience also reported higher weaning weights and calmer sows (8,25). To assess how well alternative farrowing systems meet the animals' biological needs, a welfare design index (WDI) was developed and used to conclude that designed pens (WDI 1.74) better meet the biological needs of sows and piglets compared to temporary (WDI 1.19–1.37) and conventional crates (WDI 0.95) (7). Designed pens are larger pens with separate functional areas (feeding, nest area and dunging area) as well as pen features such as sloped walls or farrowing rails to aid sow posture changes and protect piglets from crushing.

Free Farrowing Pens

Free farrowing pens, otherwise known as zero-confinement or designed pens, house sows individually, but unlike crates or temporary crates, the sow's movement is not restricted during both farrowing and lactation.

Compared to a crate's total footprint of 3.5–4.5m² per sow and litter, a well-designed free farrowing pen should have a total space allowance of ≥ 7.8m² (sow space allowance ≥ 6.6m²; creep space allowance >1–1.2m²) allowing sows to move freely and for piglets to easily access teats (8). Key features will include anti-crushing elements such as sloped walls, separate functional areas for lying/nesting, dunging and feeding, the provision of nesting substrate (e.g. straw), solid floor in the lying and nesting area, an attractive creep area which is easily accessible by staff and the possibility to fix the sow for worker safety.

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Temporary Crates

Piglets are at their most vulnerable in the first few days of life. Temporary crates have been developed to reduce piglet mortality due to crushing in the first days after birth and to increase sow mobility for the rest of lactation.

There are a variety of temporary crate systems (e.g. 360 Freedom Farrower (4.3m^2); SWAP (6.5m^2); Pro-Dromi (7.5m^2); Aco Funki (7-7.5m^2)). Generally, temporary crates are closed between day 5–2 pre-farrowing and opened between day 3-7 of lactation. When in the closed position, temporary crates pose the same welfare concerns as farrowing crates. When in the open position, temporary crates have the potential to improve welfare as long as they are large enough and well-designed, in order to provide sufficient space, encourage good maternal behaviour and allow hygiene maintenance (8).

"TEMPORARY CRATING SYSTEMS SHOULD NOT BE USED AS AN INTERIM STEP FOR FARMS THAT WANT TO CONVERT FROM CRATES TO COMPLETE FREE FARROWING, IF THE TOTAL FLOOR SURFACE AREA THEY OCCUPY IS INSUFFICIENT TO ALLOW FOR A WELL-FUNCTIONING PEN SYSTEM."

According to EFSA, 2022 (8)

© CIWF, Alternative Farrowing in Finland

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Stockperson Safety

Stockperson safety is paramount in any workplace and there are valid concerns when sows (particularly with piglets) and workers share the same space. Stock people will commonly need to enter the pen for cleaning or to aid sows or piglets during farrowing.

A scientific study found that staff manually delivered piglets half as often when sows were kept in free farrowing pens (13.6%) compared to crates (27.5%) (34). Sows requiring less assistance in free farrowing pens has also been reported on farms (Yli-Simola Farm, Finland, personal communication, 17th August 2023; Switzerland farms, personal communication,12th October 2023; Norway farms, personal communication, February 2024). Similarly, sows in free farrowing pens have reduced inter-birth intervals (8), show less pain-related behaviour during farrowing (21) and have fewer post-partum health disorders (35) compared to crates. Nonetheless, pens should be designed to allow for easy inspection and to promote good piglet survival (e.g. creep area next to nest site) to minimise the need for assistance around farrowing. Worker safety and welfare is key to producer buy-in, so it is important any alternative farrowing design considers the needs of the stockperson as well as the sow and piglets.

In certain countries, there are additional regulations around stockperson safety and farrowing sows (Sweden and Germany). In Germany, the farrowing pen must legally be designed so that 'no hazard can arise from the sow when catching or treating piglets' (18,36). In free farrowing pens that do not have the option for temporary crating, methods such as lockable feeding stalls (37) and the use of gates or walls between different pen areas (38) allow the option to confine the sow for short durations (i.e. a few hours at a time) for both management and worker safety purposes. Workers using free farrowing systems where physical separation from the sow is not possible highlight the importance for positive human-animal relationships. This includes gentling the sow pre-farrowing to allow safer interactions post-farrowing (39,40), when the sow may be more maternally defensive (41).

Experience in Alternative Farrowing Systems

When new, alternative farrowing systems are installed on farms, there is evidence of a learning curve where both stockperson and sow experience is a factor.

Both sows and stock people need to adapt to the new system and establish a routine, which have been found to reduce live-born piglet mortality (38,42,43). In a UK study comparing two farms using the PigSAFE free farrowing pen and farrowing crates, Farm A, managed by a farmer with previous experience of outdoor pigs and loose sows, achieved a lower live-born mortality rate (crates: 7% and PigSAFE: 6%) compared to Farm B (crates: 10.5%; PigSAFE: 12.5%) which was managed by a farmer with previous experience of crated sows. Additionally, at Farm B, piglet mortality in PigSAFE pens showed an improvement within the first two batches (7 batches in total), highlighting the importance of stockperson training when adapting to a new system (14). Similarly, data from a commercial trial of the SowComfort pen in Norway showed that live-born mortality decreased by 3 percentage points over five batches and remained consistent once the farmers had learnt the new system and routines were established (38). Sows must also habituate to a new system. Studies have found that sows who farrow in the same environment from the first to second parity have lower crushing mortality compared to those moving between different systems (42,43). Therefore, appropriate staff training, training of the sow and continued experience of alternative farrowing pens are all vital for a successful transition away from farrowing crates (3,37,42,44–46). It is also beneficial to invest in a full transition to alternative farrowing, thereby avoiding the use of farrowing crates and alternative farrowing systems simultaneously and switching between systems.

Legislation

Although farrowing crates are still allowed in most places of the world, some countries have decided to phase them out in response to consumer concerns.

Farrowing crates, including temporary crates, have been banned in Sweden (1988) and Switzerland (2007). Farrowing crates have also been banned in Norway (2000) and although few farms use temporary crating, it is permitted for up to 7 days. Austria and Germany have recently introduced a ban phasing out crates by 2033 and 2035 respectively, allowing temporary crates (maximum of 2 and 5 days confinement, pen size 5.5m^2 and 6.5m^2 respectively). Although no regulations exist on farrowing crates in the rest of Europe, the European Citizens' Initiative (ECI) to 'End the Cage Age' galvanised the support of more than 1.4 million EU citizens and was debated in the European Parliament in 2021. As a consequence, in June 2021, the European Commission commited to put forward a legislative proposal by the end of 2023 to phase out, and prohibit, all caged systems by the end of 2027. The European Commission has yet to honour this commitment.

In New Zealand, Wellington High Court found farrowing crates to be unlawful and subsequently, the Government has announced a phase out of crates by 2025 (8,47). In the EU and UK, it is currently unknown which direction legislation will go, including if and when farrowing crates might be phased out and what minimum design features will be required (e.g. space allowance). This uncertainty around future system compliance can be a barrier to voluntary uptake.

Despite offering the opportunity to improve sow welfare during farrowing and lactation, there is minimal uptake of alternative farrowing systems within the UK. This is largely due to producer concerns around piglet survival, ease of management, impact on cost of production, lack of legislative direction and continued concern regarding the physical implementation (e.g. building installation, investment cost, planning permissions, environmental permits) of alternative farrowing.

The following sections detail the three main challenges to implementation of alternative farrowing at scale in the UK:

1 | ECONOMIC BARRIERS

2 | KNOWLEDGE GAPS

3 | STAKEHOLDER ALIGNMENT

1

ECONOMIC BARRIERS

The economic barriers can be broken down into several categories.

Investment Cost

The investment (upfront) cost for transitioning to alternative farrowing systems is significant, and will need to involve financial investors, architectural and engineering advice and planning permissions.

Retrofitting Current Buildings

Cost of investment varies depending on the system installed. Retrofitting current buildings can be seen as a cost-effective opportunity. However, it could be a false economy if the buildings are suboptimal for establishing efficient working routines and optimal pen designs, or do not have suitable ventilation or slurry systems. For example, underfloor flushing can deal with substrates such as straw but may not be possible within existing buildings. The use of existing buildings is also likely to lead to farms 'down-sizing' production levels, as alternative farrowing pens require more space than farrowing crates and so fewer sows can be housed in the same available space. Depending on planning approval, buildings can be extended to counter the loss of sow numbers.

New Buildings

New buildings can offer the optimal building design for improved ventilation, slurry management and alternative farrowing pens. Due to the increased footprint of alternative farrowing systems, planning permission for new buildings or expansion of current buildings is needed. It can take up to two years for a new building to be approved and approval is not guaranteed. Currently, animal welfare is not considered as part of the planning application approval process and there is a disconnect between planning application approvers and producers. Obtaining planning permission is a barrier which could delay the process.

Environmental Permits

New buildings and some retrofitting of current buildings may face the challenge of securing new environmental permits which can cause delays. In the UK, intensive pig production is regulated under the Environmental Permitting Regulations (EPR). Pig farmers must apply for an environmental permit if their livestock capacity exceeds 750 sows and/or 2,000 production pigs over 30kg. The cost of an environmental permit varies depending on whether it is a new permit (£8,020) or change to a current permit (minor variation - £2,406; normal variation - £4,010; substantial variation - £7,218) (48). In the UK every farmer must comply with The Water Resources (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010 (SSAFO) including if they build new silage and slurry storage, or substantially enlarge or reconstruct one. Therefore, breaking into the floor of an existing system (e.g. to install underfloor flushing) may trigger the need for a new environmental permit. Decisions on applications are generally made within four months for a new permit and three months to change an existing permit. However, if many producers applied for permits simultaneously, these timescales may be extended (49).


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Investment Cost Estimations

The investment cost will depend on whether existing buildings are being converted or new buildings are being built, as well as the alternative farrowing system adopted. For any system providing bedding, installation cost will be increased by the need for a method to deal with bedding material and manure, such as underfloor flushing. Baxter (7) estimated that compared to a farrowing crate (£1,843/sow place), a 7.2% increase in investment cost is required for a swing opening temporary crate (£1,976/sow place) and a 17.5% increase in investment cost is required for a designed pen (assuming building shell remains, including drainage, ventilation, plumbing in place, but excluding flooring; £2,165/sow place). Guy (49) estimated that building costs per sow place (new building from ground, not converting existing building) would be 38.5% higher for a PigSAFE designed pen (£509 building cost/sow place) compared to a farrowing crate (£386 building cost/sow place). However, both these studies were published in 2012, and between 2011 and 2023, the pound sterling had an average inflation rate of 3.45% per year, producing a cumulative price increase of 50.30%. The Office for National Statistics composite price index shows that prices in 2023 are 1.5 times higher than average prices in 2011. Using Baxter (7) cost estimations and adjusting them for inflation using the Consumer Price Index, a farrowing crate, swing opening temporary crate and designed pen is estimated to cost £2,598/sow place £2,785/sow place, and £3,052/sow place respectively in 2023 (Table 1).

[ii] Environmental permits and abstraction licences: tables of charges - GOV.UK (www.gov.uk)
[iii] Pigs and poultry intensive farming: environmental permits - GOV.UK (www.gov.uk)
[iv] Inflation calculator | Bank of England


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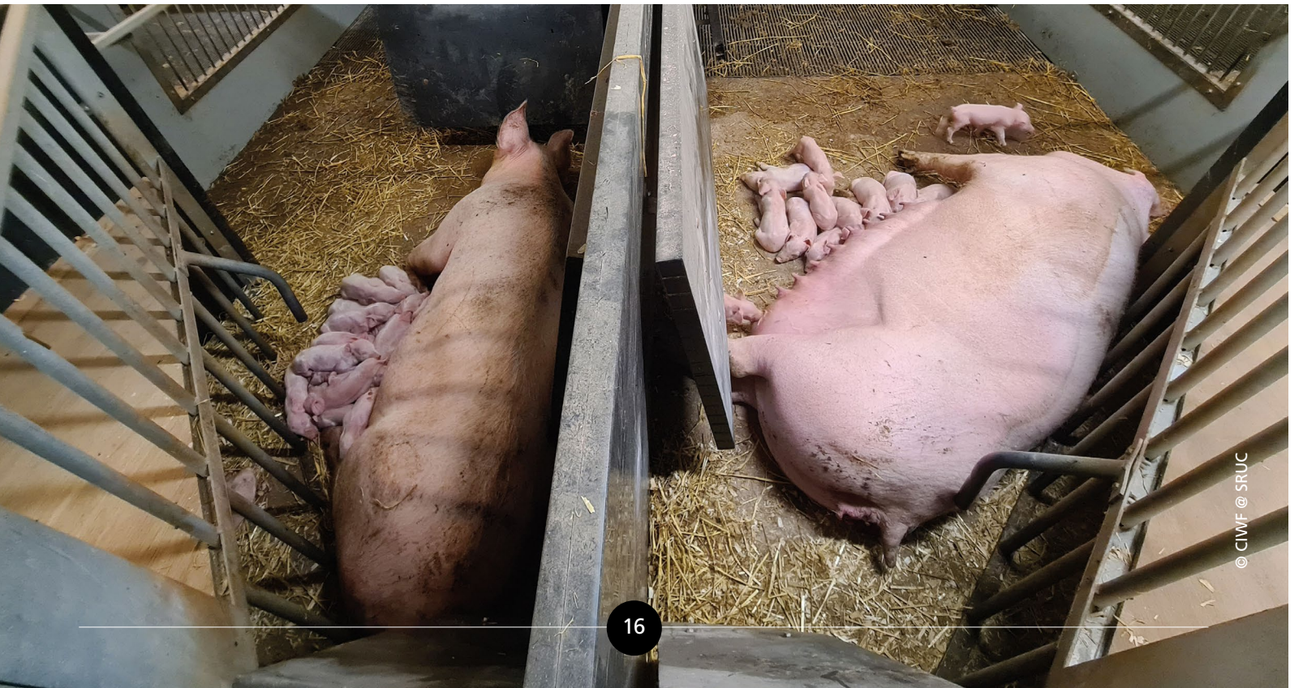
More recently, Moustsen (50), estimated that the extra space (floor area and additional building shell) required for alternative farrowing systems compared to crates increases the capacity cost (economic term to describe expense incurred by a company to expand the business) by 15.4% for a 5.76m^2 temporary confinement system with fully slatted floor, 14.4% for a 6.3m^2 temporary confinement system with partially slatted floor, and 21.7% for a 6.6m^2 zero-confinement pen with partially slatted floor.

Based on industry sources, AHDB (1) estimated that farrowing crates (4m^2) cost between £3–3,500/sow place and alternative farrowing systems requiring 6m^2 and 8m^2 add approximately £2,000 and £4,000 over the base cost respectively. Table 1 provides a comparison of the different estimated farrowing place cost/sow based on the three sources discussed above. AHDB (1) estimates are 1.1 and 1.3 times higher for farrowing crates, 1.3 and 1.7 times higher for temporary crates and 1.8 and 2.3 times higher for farrowing pens compared to Moustsen (50) and Baxter (7) predictions respectively.

TABLE 1: Comparison of estimated farrowing place cost/sow (£) and percentage increase compared to crates cost (%↑) across different references. Baxter (7) costs have been adjusted for inflation.

Farrowing System	Baxter (7)		Moustsen (50)		AHDB (1)	
	Cost + Inflation (£)	% ↑	Cost (£)	% ↑	Cost (£)	% ↑
Farrowing crate	2,598	-	3,246	-	3–3,500	-
Temporary crate	2,785	7	3,751–3,758	14–15	5,000	43–67
Free farrowing	3,052	18	3,954	22	7,000	100–133



Production Cost

Increased cost of production is also considered an economic barrier, predominantly due to the increased space required for alternative farrowing systems leading to a reduction in herd size, as production costs are spread over fewer animals reared. Additional costs include straw bedding and nesting provision, potential for increased piglet mortality in the initial transition/learning period and for extra labour requirements (e.g. cleaning out pens). In some cases, higher production costs may be offset by premium payments for higher welfare meat. However, premium prices for indoor alternative farrowing are not considered a realistic solution by industry stakeholders, due to concerns around cost-of-living, carcass utilisation and product differentiation. There is concern from producers that if consumers cannot afford pork, they may choose to buy cheaper proteins and/or imported pork produced under lower welfare standards (e.g. Spanish/Brazilian pork). Additionally, industry is worried that consumers would only be willing to pay premium prices for outdoor reared pigs.

Despite the higher cost of production, compared to farrowing crates, well-designed alternative farrowing systems can result in fewer stillbirths (23), higher weaning weight (8,25,29,30), improved sow condition including fewer injuries, and in some studies lower piglet mortality has been observed (26–29). Farmers themselves have also reported lower piglet mortality and improved sow condition, including fewer injuries (25). These production benefits of alternative farrowing systems could help to recover the additional cost of free farrowing production. However, further research using commercial data is required to investigate this.

Guy (49) estimated that cost of production (capital and running costs assuming same performance between systems) would be 3.5% higher for a PigSAFE designed pen[v] compared to a farrowing crate[vi]. Moustsen (50) estimated a cost of production percentage increase per year of 2.1% for a 5.76m^2 temporary crated system with fully slatted floor[vii], 2.4% for a 6.3m^2 temporary crated system with partially slatted floor[viii] and 4.0% for a 6.6m^2 zero-confinement pen (partially slatted)[ix] compared to farrowing crates[x].

AHDB (1) estimated that a 6m^2 pen adds about 2p/kg deadweight[xi] onto the base cost and an 8m^2 pen adds about 4p/kg deadweight. Also, each percentage point increase in pre-weaning mortality increases production cost by about 0.5p/kg deadweight. For Great Britain (GB) indoor herds to install alternative farrowing systems, AHDB (1) estimated that the cost of production would increase by 3-8p/kg deadweight, depending on pen size (6 or 8 m^2) and piglet mortality achieved (12–18%). Table 2 provides a comparison of the estimated cost of production percentage increase from crates based on various sources.

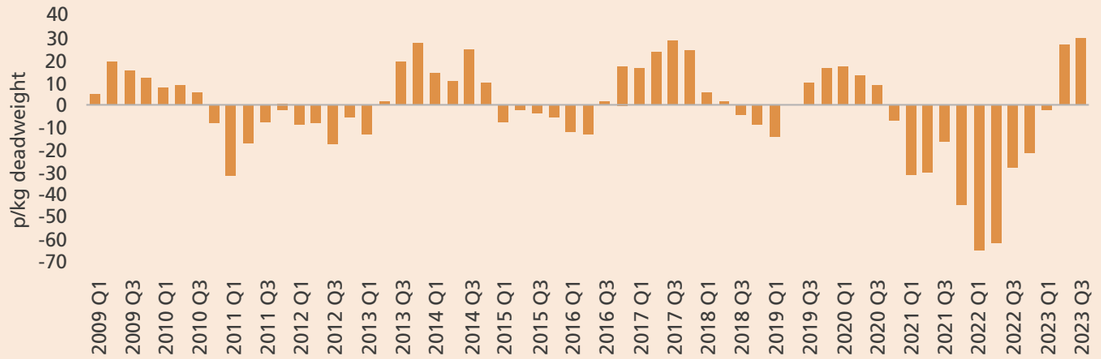
TABLE 2: Comparison of estimated cost of production percentage increase from farrowing crates compared to temporary crates and free farrowing across different references.

Farrowing System	Moustsen (50)	Guy (49)	AHDB (1)
Temporary crate	2.1–2.4%	1.6–1.7%	1.2–3.2%
Free farrowing	4.0%	3.5%	

[v] PigSAFE - total production cost/sow (gestation & lactation) £803.65; cost/weaned piglet (8kg, 12% mortality) £35.23 (49).
[vi] Farrowing crate - total production cost/sow (gestation & lactation) £776.29; cost/weaned piglet (8kg, 12% mortality) £34.03 (49).
[vii] Temporary crate, fully slatted - total production cost/sow (gestation & lactation) £938; running costs/sow £812; cost/weaned piglet (8kg, 15% preweaning liveborn mortality) £23.90 (50).
[viii] Temporary crate, part slatted - total production cost/sow (gestation & lactation) £929; running costs/sow £814; cost/weaned piglet (8kg, 15% preweaning liveborn mortality) £23.90 (50).
[ix] Zero-confinement, part-slatted - total production cost/sow (gestation & lactation) £989; running costs/sow £819; cost/weaned piglet (8kg, 15% preweaning liveborn mortality) £24.30 (50).
[x] Farrowing crate, fully slatted - total production cost/sow (gestation & lactation) £900; running costs/sow £803; cost/weaned piglet (8kg, 15% preweaning liveborn mortality) £23.40 (50).
[xi] Deadweight is the 'estimated weight of saleable meat that will be yield.

In July to September (Q3) 2023, pig production had a period of good profitability (net margin of 28p/kg), but profitability is variable. Long term net margins over a decade averaged 2.5p/kg and -1.8p/kg deadweight prior to Covid (2009–2019) and post-Covid (2013–2023) respectively (Figure 1, data sourced from AHDB[xii]). An increase in production costs of 3–8p/kg deadweight would strongly impact the pig sector, unless an increase in pig prices or financial support to offset the cost is achieved and consumers are prepared to pay more for pigmeat. However, when considering extended supply chain elements such as slaughter, processing, marketing, manufacturing, distribution, portioning, packaging and final retail sale, farm gate prices represent on average only about one quarter of the price of the final food product (51). For example, if higher welfare systems result in a 10% increase in overall production costs at farm level, this might materialise to a ~2.5% increase in the retail cost of a high-welfare food product. Cost of animal welfare improvements might cost consumers more pennies per week more yet contribute towards collective preferences of society (51).

FIGURE 1: Quarterly estimated net margins (p/kg deadweight) from 2009 Q1 to 2023 Q3, sourced from AHDB[xii].



[xii]Pork Cost of Production and Net Margins | AHDB

The Impact of Transition Periods on Cost

Upfront costs will also depend on the transition period as current buildings and equipment are depreciated over 20 and 10 years respectively. AHDB (1) estimated that for a:

- **5-year transition period**, 75% and 50% of previous building and equipment costs are still being paid for at the time of transition, equating to an additional 2p/kg deadweight to production costs in the first 5 years.
- **10-year transition period**, 50% of previous buildings would need to be replaced before their time (assuming retrofitting not possible) but equipment costs would be expected to be fully monetised. Therefore, a 10-year transition time would equate to an additional 1p/kg deadweight to production costs over the 10 years.
- **15-year transition period**, 25% of older buildings would not be fully monetized equating to 0.5p/kg on the cost of production over 15 years.

Overall, in addition to Government, financial stakeholders and those involved in planning and building permissions should support investments in the most future-proofed alternative farrowing options. An end-to-end economic assessment is needed to fully quantify the cost of alternative farrowing systems from the initial investment costs to the production and slaughter/market costs through to the retailer costs.

FIVE KEY ACTIONS
to help reduce the economic barriers hindering a transition to alternative farrowing systems:

1 Public funding and grants to support the transition to alternative farrowing.

Why? Given the large investment costs, farmers need to be financially supported in transitioning to well-designed, future-proofed alternative farrowing systems.

How? Governments need to provide grants supporting the transition from farrowing crates to alternative farrowing systems. The Government could co-fund the transition to alternative farrowing systems under the newly launched Animal Health and Welfare Pathway infrastructure grants. Currently, this offers grants for Calf Housing for Health and Welfare up to 40% towards the cost of calf housing and buildings. However, these grants come under the Farming Transformation Fund and are in competition with other priorities and farm investments (e.g. improving farm productivity grants) and may not encourage widespread change in farrowing systems.

Grants may be more effective if a legislative proposal to phase out farrowing crates is is introduced. To encourage early uptake of alternative farrowing systems, a front-loaded grant approach could allow those moving to alternative farrowing systems in the first year after a ban is announced to receive a larger proportion of the costs in the form of a grant; and for this to be tapered down so that those in the final year receive a smaller proportion. This approach may be limited if supply of pork products and alternative farrowing systems were constrained.

In Sweden, an initial subsidy was provided to enable farmers to transition to free farrowing. Due to continued higher production costs, Sweden continues to provide a subsidy for pig production (1,050sek/sow) (52). Subsidies could be provided to farmers temporarily during the 'learning phase' of the new system or, they could be provided continuously to provide long-term financial support. Continuous financial support is unlikely, but the use of subsidies, particularly during a learning phase, is a potential action.

Any financial support should be based on the cost data available to ensure there is a clear understanding of what is needed and better connect Government support and food production/ farming. Lastly, there should also be clear advice on which grant programmes to sign up to and how to complete the relevant paperwork.

Key Stakeholder(s) Responsible: Government

Supporting Stakeholder(s): Producers, manufacturers, retailers and other food companies to highlight the importance of financial support to Government.

2 Mandatory labelling on method of production.

Why? By introducing mandatory pork labelling based on method of production, farmers will be able to receive a higher price for 'crate-free pork' helping to recoup the higher cost of production and upfront investments. The label 'crate-free pork' would also exclude the use of sow stalls for 4-week period in the EU. Currently, those with higher welfare indoor systems are generally not getting a premium for their pork compared to pork from standard indoor farrowing crates. Mandatory method of production labels would help incentivise supermarkets to promote and sell 'crate-free pork' and for consumers to buy it. Mandatory labelling is used in Switzerland creating market incentives at scale, which have low costs to Government and industry. Additionally, voluntary labelling for outdoor pork in the UK has encouraged an increase in retail sales of higher welfare pork (+12%) compared to standard products (+7%) between 2019 and 2021 (53).

How? Develop clear method of production labelling systems or adopt labelling systems already designed (e.g. **CIWF's Honest Labelling Matrix**) with a clear, consumer-friendly description of the farming system used to help consumers understand the different production systems. Specifically, labelling schemes should include alternative farrowing in their core criteria and government should introduce mandatory method of production labelling. In the interim, assurance schemes should revise their criteria so that indoor alternative farrowing systems are the entry-level category. Retailers and other food companies will need to make alternative farrowing commitments covering their entire supply chain, including continental meat, to provide a level playing field for both UK and EU pork products sold within the UK.

Key Stakeholder(s) Responsible: Government

Supporting Stakeholder(s): Assurance schemes to voluntarily raise the baseline to alternative farrowing. Retailers and other food companies to commit to free farrowing and to use voluntary method of production labelling.

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3 Pay a fair price for a fair product.

Why? Due to increased costs and potential reduced production, a fair price to cover the cost of production and financially support producers in achieving and maintaining a crate-free production system is required.

How? Food companies need to support producers by paying a fair price for the use of indoor alternative farrowing systems. An increase in pig prices and price transparency will need to be achieved and shared fairly amongst stakeholders. As a practical example, in Finland, the second largest processor provides a voluntary premium (3 euros per pig) to any farmers within their supply chain using alternative farrowing.

Key Stakeholder(s) Responsible: **Retailers and other Food Companies**

Supporting Stakeholder(s): **Whole supply chain to accept a slight cost increment; consumers to accept a slight price increase.**

4 Financial services to support alternative farrowing.

Why? Higher welfare, alternative farrowing systems are more robust against future legislative changes, are aligned with the public demand to move away from confined systems (demonstrated by the UK and EU 'End the Cage Age' campaign which achieved over 1.4 million signatures) and are more resilient to external pressures (e.g. campaigns from non-governmental organisations (NGOs) and undercover investigations). A future-proofed investment is therefore a lower financial risk and both preferential loan terms and reduced insurance premiums should reflect this.

How? Financial investors should collaborate with interdisciplinary animal welfare experts who can highlight the risks and benefits of different systems. The Business Benchmark on Farm Animal Welfare (BBFAW) is a tool which can be used to help investors integrate farm animal welfare into their investment research and decision-making. Financial investors can also update their position statements to not provide financial services towards systems using farrowing crates. For example, in 2024, Standard Chartered updated its Agribusiness Position Statement to exclude financial services towards 'gestation and farrowing crates for sows'. Additionally, insurance companies can incentivise and reward positive change by offering reduced premiums for the adoption of well-designed, well-designed, alternative farrowing systems.

Key Stakeholder(s) Responsible: **Financial Investors and Insurance Companies**

Supporting Stakeholder(s): **Animal welfare experts and tools such as BBFAW (Business Benchmark for Farm Animal Welfare).**

5 Prioritise planning applications for alternative farrowing systems.

Why? Alternative farrowing systems can provide an improved environment for the animals and humans involved (25,54) and can offer a sustainable alternative to farrowing crates. These systems are more likely to be positively viewed by local residents compared to conventional systems using farrowing crates. This is demonstrated by the recent European Citizens' Initiative (ECI) 'End the Cage Age' led by Compassion in World Farming, rallying over 170 organisations and galvanising the support of over 1.4 million signatories, from more than 18 Member States (45). Consumers surveyed in the UK agree that the welfare of pigs is important (55) and on average, UK consumers are concerned about the welfare of pigs (56). Globally, consumers' main concerns regarding pig welfare relate to living conditions (57,58), including outdoor access (59–62), space allowance (59,61–63), freedom of movement (59,62,64,65), provision of a littered floor/straw bedding (59,61,66) and avoidance of pain/mutilations (60,62,67).

Although considerations regarding biosecurity and disturbance to the animals (e.g. use of viewing rooms or corridors) would need to be made, there are examples of free farrowing farms that organise visits for the public to view their farm, thus helping to improve education of food production and helping to develop a sense of community and support. For example, a farm in Sweden offers weekly visits, charging 5,000 sek/2 hours for up to a maximum of 10 people to visit their free farrowing farm (J. Erikkson, personal communication (4th July 2023)). These benefits and the opportunity for positive media attention should be prioritised when considering planning applications.

How? Integrate local farmers' animal welfare performance, worker and community well-being; and sustainability into council regional targets; and evaluations to increase the likelihood that plannings for higher welfare systems are approved.

Key Stakeholder(s) Responsible: **Councils and Government**

Supporting Stakeholder(s): **NGOs, retailers and other food companies to deliver public campaigns on alternative farrowing to raise awareness to local communities and/or general public.**

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2

KNOWLEDGE GAPS

The knowledge gaps can be broken down into several categories.

Which Alternative System to Adopt?

There is growing scientific evidence investigating the performance of different farrowing systems; however, it can be difficult for stakeholders to gain clarity on which systems to adopt. Research has been carried out on pen designs and key features have been highlighted to optimise piglet survival, sow welfare and stockperson safety and efficiency. Alternative farrowing pens include a range of features including separate functional areas for nesting, feeding and dunging, as well as additional features such as sloped walls and farrowing rails to assist sow postural changes and protect piglets from crushing. However, size and design vary greatly between pens. For example, PigSAFE offers a total pen footprint of 8.9m^2, Swiss FAT 7m^2 and Danish free farrower (FF) 6m^2. Out of these three systems only PigSAFE and Swiss (FAT) provide a separate dunging area and nesting/lying area, but they all provide an area of solid floor and another of slatted floor, sloped walls for piglet protection during sow lying behaviour and access to the animals for fast and safe inspections. Temporary crates are rarely operated in the open position around farrowing. To successfully operate in the open position, temporary crates should be designed to allow for sufficient space for the sow and piglets, an attractive and safe creep area next to the nest site where a sow farrows, anti-crushing features at the nest site for piglet protection and separate functional areas for nesting, dunging and feeding.

Worker Experience

Worker experience and confidence also play a part, as transitioning from the management of confined sows to loose sows is a considerable change. Managing loose sows requires greater attention to animal behaviour and a positive human-animal relationship. There is a need for a readily available safe space for producers and other stakeholders to share knowledge on alternative farrowing systems and to help give confidence to move to new systems. Developing training and standard operating procedures to support staff can also improve confidence when working with loose sows in alternative farrowing systems. In addition to pen design and worker confidence, optimising breeding goals for maternal traits and reduced litter sizes are also important considerations.

Financial Implications

The full investment cost and impact of any transition on production needs to be clearly understood and evidenced. An additional concern is that the increase in space required for alternative farrowing systems will negatively affect the carbon footprint of a unit, and a balance needs to be found between environmental and animal welfare concerns. Therefore, there is a need for an end-to-end, economic and environmental assessment of the transition to alternative farrowing systems, accounting for market security and stability.

Valuing Animal Welfare

Key performance metrics should be developed to include animal welfare. These metrics can be used to track improvements and goals, as well as publicise higher welfare products through assurance schemes and animal welfare labels. Quantifying welfare benefits and establishing value for welfare metrics may also aid in overcoming economic barriers (e.g. valuing improvements to sow maternal and natural behaviour, piglet socialisation and aggression and, worker environments and well-being). At each step within the supply chain, from producer to consumer, each stakeholder should be responsible for valuing the benefits for animal and human well-being and accepting an increment in cost associated with the benefits of indoor alternative farrowing systems.

Consumer Awareness

Consumers can help to drive better welfare standards through a demand for higher welfare products and by pressurising governments to legislate changes through campaigns and petitions. The latest Eurobarometer report (68) shows that nine in ten (90%) European citizens want a ban on individual cages for farmed animals. It also shows that 94% of people believe protecting the welfare of farmed animals is important; 82% think farm animals should be better protected than they are now, and that people are prepared to pay more for products from higher animal welfare production systems. However, according to AHDB/Blue Marble Trust Research conducted in June/July 2019 (1), 56% of UK adults are not aware of farrowing crates and, although there is a level of understanding around the benefits of outdoor free farrowing, an awareness of indoor free farrowing is needed. It is pivotal that consumers are aware of the issues so they can demand and support change through their purchasing decisions.


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© CIWF, Piglet creep in Switzerland

FIVE KEY ACTIONS
to help raise awareness and fill these knowledge gaps to increase confidence in transitioning to alternative farrowing systems:

1 Establish and promote a portfolio of commercially operating farm case studies, including ambassador and demo farms.

Why? Learning from those operating successfully with alternative farrowing pens can help to successfully plan, identify commonalities between stakeholders and provide the confidence to transition to alternative farrowing systems.

How? Identify stakeholders already using alternative farrowing pens to establish lessons learned from systems already in place. Identify stakeholders wanting to be at the forefront of change. Support these stakeholders with technical expertise, knowledge sharing, business connections and business management skills (e.g. developing a business case). Share the data and results from ambassador and demo farms.

Key Stakeholder(s) Responsible: Industry Bodies, Retailers and other Food Companies

Supporting Stakeholder(s): Producers, NGOs and academics/researchers to support with knowledge sharing.

2 Develop and distribute user-friendly information resources.

Why? It can be difficult for stakeholders to gain clarity from the evidence on which systems and designs work well.

How? Condense scientific evidence into user-friendly information resources for multi-stakeholder engagement to encourage investment in well-designed alternative farrowing systems. Share key information through stakeholder networks and forums. Information resources can also be available through demo farms and farm ambassadors. Sharing key information in a user-friendly format on NGO websites and social media platforms can raise consumer awareness and start the conversation around indoor alternative farrowing. Consulting with educational institutions can also help consumers understand the benefits of alternative farrowing systems.

Key Stakeholder(s) Responsible: Industry Bodies, NGOs, Academics/Researchers, Retailers and Food Service Companies

Supporting Stakeholder(s): Educational institutions to support distribution of resources.

3 Support stakeholder networks and forums to initiate discussions, share best knowledge, opportunities and benefits.

Why? Networks and participatory experiences have been highlighted as important to positively support change and generate innovation. Stakeholders can learn from each other, and this will help build confidence for those both wanting to make or unsure about making the transition to alternative farrowing systems. Platforms can also be industry wide, both in person and online, so that knowledge can be shared broadly.

How? Producer groups to share technical expertise and experiences with other producers. Retailers to share information with their supply chain. New multi-stakeholder frameworks and forums can also be established, bringing together researchers, NGOs, food companies, farmers, governmental agencies and consumer consortiums to openly discuss key requirements for a successful transition to alternative farrowing systems. These forums can be used to develop a platform for farm ambassadors and demo farms to share and speak openly about their experiences.

Key Stakeholder(s) Responsible: Industry Bodies, NGOs, Retailers, other Food Companies, Producers and Governmental Agencies

Supporting Stakeholder(s): All stakeholders to attend and participate in networks and forums relevant to them.

4 Upskill farm workers through training initiatives and consulting with agricultural education institutions.

Why? It is important workers feel confident in using the alternative farrowing pens, as there is evidence that experience in managing them can improve animal welfare and the performance of these systems. A successful transition requires workers to be dedicated to animal welfare and on board with the decision to implement alternative farrowing pens. They can help advocate for the transition to alternative farrowing systems, enhance knowledge exchange between producers and improve the confidence to invest in alternative farrowing systems.

How? Training initiatives should be encouraged for professional development and to improve standard operating procedures. This applies to advisors and on-farm workers. An empathetic and understanding approach to any worker's concerns is paramount in ensuring they are on-board with any changes and feel comfortable training for a new system. Consult with educational institutions to integrate alternative farrowing pen systems into teaching and relevant qualifications to upskill future generations and establish a dedication to animal welfare early on.

Key Stakeholder(s) Responsible: Industry Bodies, Educational Institutions, Producers, Retailers and other Food Companies

Supporting Stakeholder(s): On-farm workers to attend training initiatives.

5 Adoption of technology, best systems and performance management metrics with animal welfare.

Why? Technology can be a critical enabler to build the confidence to move to alternative farrowing pens. This can include tools to measure wider welfare outcomes, to aid knowledge transfer as well as the use of benchmarking and marketing tools. Performance metrics can be a critical enabler for aligning stakeholder values and measuring outcomes for effective cost-benefit analysis. Aligning performance management metrics will help to share the values, risks and responsibility across all stakeholders. They can also help to identify challenges, opportunities and solutions, as well as to share knowledge across stakeholders on best systems. Benchmarking tools and platforms can help share market data in a user-friendly format and in turn improve motivation and aid collaboration.

How? Provide tools to track progress across stakeholders and reward commitments and positive performance (e.g. through award schemes such as Compassion in World Farming's Good Sow Commendation, Good Pig and Cage-Free Awards). This should include productive performance, but also animal and human well-being performance using metrics that monitor sow, piglet and human welfare. These metrics could include, but are not limited to, mortality data (total mortality (% stillborn + live-born piglet deaths), pre-weaning mortality (% live-born piglet deaths), stillborn, number born alive), total number weaned, weaning weight, sow body condition/weight, sow lesion scores and questionnaires/surveys to capture worker experience and well-being. More advanced performance metrics could include automatic activity monitoring using image processing technologies (69,70). Performance reviews should take place via multi-stakeholder communication methods where cross-sector benefits and the alignment of animal welfare metrics are considered. Use platforms and social media to engage with a wider and global audience.

Key Stakeholder(s) Responsible: Assurance Schemes, Industry Bodies, Producers, Retailers and other Food Companies

Supporting Stakeholder(s): NGOs and Academics/Researchers for welfare outcome measures.

3

STAKEHOLDER ALIGNMENT

Collective Action

The supply chain is an interconnected network where greater change can be achieved if every stakeholder within the system is encouraged and enabled to transition to and promote higher welfare, alternative farrowing systems. The market cannot be revolutionised without legislation, unless there is a shift in consumer attitude and buying habits, which is unlikely. Additionally, collective action is needed, and the entire supply chain needs to be on board. After the sow stall ban came into force in 1999, there was a drop of approximately 40% in the UK pig herd. There were multiple factors that resulted in this loss including: Post Weaning Multisystemic Wasting Disease (PMWS) (emerged in the UK between 1998 and 1999 (71)) resulting in herd and therefore financial losses. At the time, the value of the British pound was high, thus impacting imports and the UK pig industry could not compete with cheaper, lower welfare pork products imported from the rest of Europe. Although the loss of the pig industry was multi-factorial, there is concern that a ban on farrowing crates will lead to cheaper, lower-welfare imports, pushing the UK pig industry out of market. Therefore, it is of fundamental importance that there is collaborative action across the entire supply chain to support and provide confidence to the UK pig industry to transition to alternative farrowing systems.

Raising the Baseline

Raising the baseline to alternative farrowing and ensuring it is the minimum in assurance schemes would enable the transition. Legislation is key to implementing system change, and trade regulations – alongside legislation – are paramount in ensuring all imported products meet UK baseline standards. Trade regulations are deemed vital in avoiding unintended consequences such as a shift to importing cheaper, lower welfare pork.

Consumer Perception

Labelling of Products

The Eurobarometer (2023) (68) shows that 60% of Europeans look for higher welfare labels when buying animal sourced food. Additionally, since 2015, the number of respondents who are not aware that these labels exist (2%) has fallen by 8 percentage points.

Willingness to Pay

The Eurobarometer (2023) (68) shows that six in ten respondents (60%) are willing to pay more for products sourced from higher welfare systems. Around a quarter (26%) would be ready to pay up to 5% more, 6% would be ready to pay more than 20% more but 37% (nearly 4/10 respondents) are not ready to pay more.

FOUR KEY ACTIONS
to achieve stakeholder alignment and transition to alternative farrowing systems:

1 Legislative ban and trade regulations on farrowing crates to be introduced.

Why? A legislative ban will phase out the use of farrowing crates in an agreed time frame and support a transition to alternative farrowing systems, benefitting the >200,000 sows that are raised in farrowing crates across the UK (benefitting approximately 60,000 sows at any one time). The UK Government wants to support the gradual improvement of livestock health and welfare in England and one of its welfare priorities is 'reducing sow confinement during farrowing'. To achieve this priority, the Government should support the phase out of farrowing crates. A phase out of farrowing crates in the UK, prior to Europe, will result in a larger cost differentiation between higher costing UK pork production compared to cheaper EU imports. To prevent an increased loss in market shares, it is of upmost importance that the UK's Department for Business and Trade (DBT) develops a level-playing field for the UK market transitioning to alternative farrowing systems.

How? DEFRA to take action and ensure the implementation of legislation that would phase out farrowing crates. DBT should introduce a set of core animal welfare standards for trade, based on the UK's legal minimum standards. These core minimum standards for animal welfare would set a condition for any reduced tariff or quota free access that is granted through trade deals for a given product. It should simply be a requirement that a country seeking to have British tariffs removed from its goods must meet the minimum standards required by law in Britain. The concept of core trade standards is supported by animal welfare and environmental NGOs, as well as farming bodies such as the NFU. Following the introduction of a ban on farrowing crates, these standards should state that all pork products must be coming from crate free systems to qualify for a reduced tariff or quota-free access.

Key Stakeholder(s) Responsible: Government

Supporting Stakeholder(s): All stakeholders to show support in the phase-out of farrowing crates and the need for trade regulations. Including but not limited to producers, industry bodies, retailers, other food companies, NGOs, consumers etc.

2 Campaigns and market initiatives to promote alternative farrowing.

Why? A survey conducted in 2019 showed that 56% of UK adults are not aware that farrowing crates exists (AHDB/Blue Marble Trust Research (1)). It is pivotal that consumers are made aware of the issues so they can demand change, and where possible, alter their purchasing behaviour. Campaigns, either by NGOs, retailers, or other food companies, can help to raise consumer awareness and start the conversation around alternative farrowing. Campaigns and petitions can put pressure on companies and Government to improve company policy and to introduce legislative change. Engagement with multi-stakeholders is important to develop an action plan, share knowledge and provide technical advice for a transition to future-proofed, higher welfare alternative farrowing systems. There is a need for explicit marketing and promotion by companies to bring the consumer on a journey and increase consumer awareness of existing labels, what they mean and what welfare standards each supermarket provides.

How? Development of simple, consumer-friendly messaging shared via retailer communications, on-pack messaging/labels and public-facing campaigns can help improve consumer awareness and support the differentiation of higher welfare products. NGOs to bring together multi-stakeholders, encourage discussion and collaborations. NGOs can celebrate thought leaders through awards (e.g. CIWF's Good Pig Award).

Key Stakeholder(s) Responsible: NGOs, Retailers and other Food Companies

Supporting Stakeholder(s): Consumers to engage with campaigns. Producers to work with food companies to transition to indoor alternative farrowing systems.

3 Companies to commit to alternative farrowing and create secure contracts for producers.

Why? Stakeholders may be unsure that there is enough demand for higher welfare products and that they will receive an appropriate price to cover production costs. Public commitments, secure contracts and sufficient volume requirements will ensure that, in addition to outdoor free farrowing, there is a market for products sourced from alternative farrowing systems. Secure contracts also help to share the responsibilities and pressures stakeholders are likely to face.

How? Companies to release statements of commitment to alternative farrowing and develop a transition plan. NGOs to publicly applaud commitments and steps towards positive change. For retailers and other food companies to drive change and give producers confidence, long-term contracts need to be put in place stating alternative farrowing as the baseline. These contracts will represent a demand for higher welfare pork and indoor alternative farrowing systems. Contracts should also be developed with built-in reviews and flexibility based on common goals for animal welfare and future-proofed systems across stakeholders.

Key Stakeholder(s) Responsible: NGOs, Retailers and other Food Companies

Supporting Stakeholder(s): Producers.

4 Public sector procurement to support animal welfare.

Key Stakeholder(s) Responsible: Government

Supporting Stakeholder(s): Public services e.g. schools, hospitals, offices etc.

Why? Public sector procurement is subject to a legal framework with the aim to encourage free and open competition, and value for money. At present, public procurement only requires meat, dairy products and eggs to meet minimum legislative standards on animal welfare. We believe England should emulate the Procurement Reform (Scotland) Act which requires public procurement to "promote the highest standards of animal welfare".

How? Government buying standards to require higher animal welfare criteria. Buying standards supporting higher welfare (e.g. alternative farrowing) will offer reassurance to producers that there is demand for these products. It will also ensure public budgets e.g. schools, NHS etc. are spent on quality, high welfare animal products. In the case of pig meat, this would require pork products to come from alternative farrowing systems. This does not have to lead to increased costs. The Copenhagen House of Food is responsible for meals provided in the city's public sector and after many years work, 90% of those meals are now organic. By carefully balancing the contents of meals, it has been able to do this without increasing costs.

A SUMMARY OF KEY ACTIONS AND, RESPONSIBLE AND SUPPORTING STAKEHOLDERS

Action	Responsible Stakeholder(s)	Supporting Stakeholder(s)
ECONOMIC BARRIERS		
Public funding and grants to support the transition to alternative farrowing	Government	Producers Manufacturers Retailers and other Food Companies
Mandatory labelling on method of production	Government	Assurance schemes Retailers and other Food Companies
Pay a fair price for a fair product	Retailers and other Food Companies	Whole supply chain Consumers
Financial services to support alternative farrowing farrowing	Financial Investors Insurance Companies	Academics/Researchers Animal welfare experts alternative BBFAW (Business Benchmark for Farm Animal Welfare)
Prioritise planning applications for alternative farrowing systems	Councils Government	NGOs Retailers and other Food Companies
KNOWLEDGE GAPS		
Establish and promote a portfolio of commercially operating farm case studies, including ambassador and demo farms	Industry Bodies Retailers and other Food Companies	Producers NGOs Academics/Researchers
Develop and distribute user-friendly information resources	Industry Bodies NGOs Academics/Researchers Retailers and other Food Companies	Educational institutions

Action	Responsible Stakeholder(s)	Supporting Stakeholder(s)
	KNOWLEDGE GAPS (continued)	
Support stakeholder networks and forums to initiate discussions, share best knowledge, opportunities and benefits	Industry Bodies NGOs Retailers and other Food Companies Producers Governmental Agencies	All stakeholders
Upskill farm workers through training initiatives and with agricultural education institutions	Industry Bodies Educational Institutions Producers Retailers and other Food Companies	On-farm workers
Adoption of technology, best systems and performance management metrics with animal welfare	Assurance Schemes Industry bodies Producers Retailers and other Food Companies	NGOs Academics/Researchers
	STAKEHOLDER ALIGNMENT	
Legislative ban and trade regulations on farrowing crates to be introduced.	Government	All stakeholders
Campaigns and market initiatives to promote alternative farrowing	NGOs Retailers and other Food Companies	Consumers Producers
Companies to commit to alternative farrowing and create secure contracts for producers	NGOs Retailers and other Food Companies	Producers
Public sector procurement to support animal welfare	Government	Public services (e.g. schools, hospital, offices etc.)

CONCLUSION

Alternative farrowing systems offer the opportunity to significantly improve sow and piglet welfare during farrowing and lactation when well designed and well managed, however, their uptake in the UK remains limited. Barriers preventing wide-scale adoption are categorised and actions needed by key stakeholders to stimulate the market uptake detailed. The economic impact, particularly of the initial investment cost and ongoing cost of production, is the main barrier, along with bridging the knowledge gap and stakeholder alignment.

Economic barriers are broken down into two main categories: (1) Investment costs and (2) Production costs. Investment costs will need to involve public grants from the Government, further support from financial investors and insurance companies and planning and building permissions from local councils. Production costs are largely dependent on the footprint of alternative farrowing systems, management practices and factors impacting piglet mortality. Although the increase in production cost is a concern a willingness to share the added costs can help in overcoming this barrier. It is key that retailers and other food companies pay a fair price for indoor, alternative farrowing systems. Additionally, the introduction of mandatory pork labelling, such as 'crate-free pork' can support in promoting and selling 'crate-free pork'.

Knowledge gaps, such as which systems to adopt, can also hinder progress and stakeholders and have raised the importance of demonstrating that alternative farrowing systems can work on a commercial scale. Bringing producers together across countries can help share lessons learned from systems already in place and upskill farm workers. Forming multistakeholder networks for knowledge sharing – including producers, retailers, other food companies, Government, financial investors, NGOs, researchers, educational institutions, and consumers - is paramount. Consumers can help drive change through a demand for higher welfare products but currently, 56% of UK adults are not aware of farrowing crates. The distribution of information resources as well as marketing initiatives and campaigns can help raise awareness.

Stakeholder alignment is vital in working together to enable a transition and promote higher welfare, alternative farrowing systems. Raising the baseline to alternative farrowing systems is a key step in enabling the transition and Government play a key role by providing legislative direction, trade regulations to protect the UK's market and public procurement policies. Voluntary commitments to alternative farrowing and the development of secure contracts by retailers and other food companies will also give producers the confidence to transition and supply pork from alternative farrowing systems. Overall, by working collaboratively, we can make alternative farrowing a commercial reality in the UK.

This Action Plan demonstrates that collective action is needed to successfully upscale alternative farrowing in the UK.

The following companies are supportive of collaborative action to upscale alternative farrowing and hope to give confidence to others to make the same step:

WAITROSE & PARTNERS

GREGGS

THE COMPLEAT FOOD GROUP

M&S EST. 1884

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