

End the Cage Age Sows investigation - 2022



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General background info

Compassion in World Farming’s investigators visited 16 farms in 4 different EU countries – Italy, France, Spain and Poland – between February 2022 and May 2022. The footage comes from 14 farms: in 2 Italian farms it was not possible to record images.

The selected farms belong to different supply chains: from those supplying the ‘premium’ European consortiums like Prosciutto di Parma and Jambon de Bayonne, to those farms supplying conventional pig meat producers.



Background info on the countries

Spain

For the past seven years Spain has been a leader in pig farming in the European Union with more than 34 million pigs in 2021¹, accounting for 24 percent of EU's pigs (up from 17 percent in 2012)².

In 2021 alone, 58 million pigs were slaughtered³, producing 5 million tonnes of meat⁴. Spain is in third position in the world for the number of pigs slaughtered, after China and the United States⁴. Around 80 percent of pig farms in Spain work with the "integrated" system⁵ - meaning that a company - called the integrator - provides the farmer with the animals, the pig feed, and the veterinary services for the animals. The farmer is responsible for investing in the farm and managing animal care.

Four out of the five farms visited worked with the 'integrated' system. The farms visited were of different sizes, but they were all only focused on reproduction with units of insemination, pregnancy, maternity, and piglets until they gained 18kg.

¹ This refers to live pigs, not number slaughtered, which is why it is fewer than the 58 million slaughtered. EUROSTAT, EU livestock population in numbers,

https://ec.europa.eu/eurostat/databrowser/view/apro_mt_lspig/default/table?lang=en

² EUROSTAT, EU livestock population in numbers, <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220517-2>

³ EUROSTAT, EU livestock population in numbers, https://ec.europa.eu/eurostat/databrowser/view/APRO_MT_PANN_custom_2800691/default/table?lang=en

⁴ Spanish government data

https://www.mapa.gob.es/es/ganaderia/estadisticas/indicadoreseconomicossectorporcino2020_tcm30-379728.pdf Note Germany produced more pork than Spain but Spain slaughtered more pigs.

Also verified using FAOSTAT, latest data for 2020, producing animals slaughtered, meat, pig.

⁵ Investigative reporting in El Diario newspaper in Spain, <https://especiales.eldiario.es/pac-medio-ambiente-espana/macrogranjas/>

- Total number of sows raised in Spain (2020): 2.635.250
 - Estimated % of sows in cages: 95%

Italy

In Italy, the pig sector is worth more than 20 billion euros per year and 8.3 million pigs are bred⁶, but due to the pandemic, it is in crisis because of restaurant closures and other lockdown measures.

Our investigators managed to contact and secure the viewing of four farms in Italy.

- Total number of sows raised in Italy (2020): 568.550
- Estimated % of sows in cages: 94%

Parma Ham Consortium⁷

- 140 Parma ham producing companies
- 8.000.000 Parma hams branded in 2021
- 3600 pig farms
- 78 abattoirs
- 3000 processing workers in the sector
- 50.000 employees

Distribution:

64% remain in Italy

36% Exported

- The USA is the top export market for Parma Ham; 757.000 Parma Hams were exported to USA in 2021 <https://www.prosciuttodiparma.com/en/export-north-america/>
- 48% (1.372.717 hams) of Parma Ham export is concentrated within the EU, where 56% of the sales is represented by the pre-sliced product; Germany, France, and BeNeLux are the main markets. <https://www.prosciuttodiparma.com/en/european-union/>
- The main European markets outside the EU are UK, Switzerland and Norway. The UK is the top market for the pre-sliced ham

France

Four farms of different sizes were visited, but they were all focussed on reproduction with units of insemination, pregnancy, maternity, and piglets. The investigator asked at every farm whether they supplied to Bayonne, almost all said they do. Only one farmer wasn't clear when answering this question.

- Total number of sows raised in France (2020): 1.035.000
- Estimated % of sows in cages: 90%

⁶ <https://www.dissapore.com/notizie/allevamenti-suini-in-crisi-coldiretti-a-rischio-100mila-lavoratori/#:~:text=Sono%20oltre%20100mila%20i%20posti,della%20tradizione%20Made%20in%20Italy>

⁷ <https://www.prosciuttodiparma.com/parma-ham-consortium/>

Jambon de Bayonne Consortium⁸

- 800 farms
- 18 producer groups
- 38 food manufacturers
- 1.500.000 pigs produced in 2019
- 28 slaughterhouses / cutting plants
- 1.072.729 hams salted in 2019

It's estimated that the entire Bayonne ham sector, from breeding to processing, represents more than 5.000 jobs in the production area, including 1.400 jobs directly on farms.

The Bayonne ham sector annually produces nearly 1.025.000 pieces of Bayonne ham for a turnover of 100 million euros. This represents approximately 20% of French production of dried hams, 13% of French consumption (self-service) and approximately 5% of European consumption of dried hams.

Poland

Between February and May 2022, Compassion's investigator visited 3 farms in Poland.

- Total number of sows raised in Poland (2020): 815.000
- Estimated % of sows in cages: 44%

Main findings of the investigation

The investigation footage revealed:

Sow stalls:

- Sows confined in cages virtually no bigger than their own body size, preventing all movement other than standing up and lying down – even these movements are difficult due to the severely narrow cage.
- Sows forced to lie in their own urine and faeces. Not only something they would naturally avoid, but also increases the risk of urinary tract infection.
- Sows performing abnormal behaviours of repetitively biting the bars and sham chewing (empty chewing in mid-air): behaviours thought to be related to chronic hunger and frustration.
- Sows housed in filthy conditions.

Farrowing crates:

- Sows confined in cages virtually no bigger than their own body size, preventing all movement other than standing up and lying down – even these movements are difficult due to the severely narrow cage.
- Sows forced to lie in their own urine and faeces. Not only an unnatural behaviour that they would naturally avoid, but also increases the risk of urinary tract infection.

⁸ <http://www.jambon-de-bayonne.com/la-filiere/le-consortium/>

- Sows performing abnormal behaviours of repetitively biting the bars and sham chewing (empty chewing in mid-air): behaviours thought to be related to chronic hunger and frustration.
- Sow appearing to perform frustrated nesting behaviour before farrowing.
- Sows unable to move away from harassment by piglets. If not crated, a sow can choose to move away from unwanted attentions from her piglets. In the footage sows are seen lying on their front in an attempt to hide their teats from unwanted attention of the piglets – this is their only option.
- Sows unable to interact normally with piglets.
- Frustrated attempts by sows to interact with piglets, and to move protect them.
- Sows with severe, often necrotic pressure sores due to prolonged lying on a hard surface.
- Frustrated sows repetitively pawing at the ground and hitting their head against the bars.
- Sows pushing themselves to the front of their cage before urinating, appearing to attempt in vain to urinate away from their lying area.

Background on sow stalls and farrowing crates

The sow stall and farrowing crate represent **a cage roughly the same size and shape as the animal herself. This degree of restriction of movement is more severe than for any other animal farmed for food globally.**

Data

See this report for an estimate of the numbers and percentages of sows in stalls and crates (note this is based on 2019 numbers of sows farmed, and where published data is not available, uses conservative estimates for percentages of sows in stalls and crates):

<https://www.ciwf.org.uk/media/7434596/end-the-cage-age-why-the-eu-must-stop-caging-farm-animals.pdf>

There are around 11 million sows in the EU. The majority spend nearly half of every year inside cages in which they cannot even turn around. Most are caged for four to five weeks in early pregnancy. Then, about a week before giving birth, they are confined again for around a further five weeks. In the UK, where sow stalls are banned, 60% of sows are confined for around five weeks in farrowing crates every pregnancy, meaning they spend almost a quarter of every year in the crate.

Sow stalls (individual stalls for pregnant sows)

- It is well established that keeping sows in individual stalls inevitably causes poor welfare. Housing sows in stalls until four weeks after service exposes them to the same welfare

hazards as confinement during the remaining gestation period, including frustration, stress and restricted movement

- A large body of research has been published showing that housing sows in groups, including the period from weaning and during the first four weeks of gestation, need not have any adverse effects on reproductive performance and, in some cases, may even have benefits
- Group housing systems should be designed and managed to minimise aggression and meet the welfare needs of sows by maintaining stable groups if possible and taking steps to reduce aggression when sows are mixed. This includes adequate space and opportunities for sows to escape from aggressive interactions, design of feeding systems to minimise competition, *ad libitum* feeding with high-fibre diets or permanent access to roughage, and good quality flooring with a substantial bedded area
- Group-housing systems for gestating sows, without the use of individual housing from weaning and in early gestation, are already being used successfully in many countries throughout Europe

Why are sow stalls used?

Stalls were originally used to facilitate management (eg to give extra feed to thinner sows), prevent aggression caused by mixing and overcrowding of sows and during feeding time and to fit more sows into the space.

The extensive evidence that individual housing in stalls is detrimental to the physical and psychological well-being of sows, and the clear welfare advantages of housing sows in groups, led to an EU Directive (2001/88/EC) prohibiting individual stalls for the housing of pregnant sows from 1 January 2013. However, the period from weaning to four weeks after service is excluded from this prohibition. The relevant legal text is now contained in EU Council Directive 2008/120/EC and states: *“Member States shall ensure that sows and gilts are kept in groups during a period starting from four weeks after the service to one week before the expected time of farrowing”*.

The rationale for the exclusion of the period from weaning to four weeks after service from the requirement for group housing is concern that stress caused by mixing sows may be detrimental to oestrus expression, pregnancy rate and embryo development and survival. However, a large body of research has been published showing that housing sows in groups from weaning and during the first few weeks of gestation need not have any adverse effects on reproductive performance.

The Animal Health and Welfare (AHAW) Panel of the European Food Safety Authority (EFSA) concludes:

“Housing of sows in individual stalls from weaning and until 4 weeks after mating severely restricts their freedom of movements and causes stress. Further it does not allow sows to move and socially interact during a period of the reproductive cycle where they are highly motivated to do so”⁹ and

⁹ EFSA (2007) Animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. Scientific Opinion of the Panel on Animal Health and Welfare. Question no. EFSA-Q2006-028. European Food Safety Authority. *The EFSA Journal*, 572: 1-13.

“on the basis of established knowledge, group housing from weaning seems to imply a number of welfare advantages”.¹⁰

Confinement of sows in individual stalls causes severe health and welfare problems

It is well established that keeping sows in individual stalls (also referred to as sow stalls, insemination stalls, gestation crates) inevitably causes poor welfare.

Housing sows in stalls until four weeks after service exposes them to the same welfare hazards as confinement during the remaining gestation period, including frustration, stress and restricted movement.¹¹ Stalls severely restrict the movement of sows, to the extent that they have difficulty lying down and standing up.¹²

Confined sows show increased levels of stereotypies (abnormal repetitive behaviour), urinary tract infections, unresolved aggression, and inactivity associated with unresponsiveness (suggesting that sows may be depressed in the clinical sense), reduced muscular and bone strength and reduced cardiovascular fitness.^{13 14} Stereotypies are the result of being unable to perform strongly motivated behaviours such as foraging or nesting whilst unresponsiveness and apathy is a longer term response to the same; urinary infections may be caused by contact with their urine and faeces (unconfined sows naturally excrete and defaecate away from their lying area); reduced muscle and bone strength may be due to lack of exercise.

Successful commercial group housing of pregnant sows is proven and prevalent in many countries

¹⁰ EFSA (2007) Scientific Report on animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. Question no. EFSA-Q-2006-028. European Food Safety Authority. *Annex to the EFSA Journal*, 572: 1-13.

¹¹ EFSA (2007) Scientific Report on animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. Question no. EFSA-Q-2006-028. European Food Safety Authority. *Annex to the EFSA Journal*, 572: 1-13.

¹² EFSA (2007) Animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. Scientific Opinion of the Panel on Animal Health and Welfare. Question no. EFSA-Q2006-028. European Food Safety Authority. *The EFSA Journal*, 572: 1-13.

¹³ SVC (1997) *The Welfare of Intensively Kept Pigs*. Report of the Scientific Veterinary Committee.

¹⁴ EFSA (2007) Scientific Report on animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. Question no. EFSA-Q-2006-028. European Food Safety Authority. *Annex to the EFSA Journal*, 572: 1-13.

A number of published reviews^{15 16} and recent studies^{17 18 19 20} indicate that reproductive performance in group housing systems is comparable with (and in some cases superior to) that in stalls.

In the UK, where individual stalls have been completely prohibited since 1999, sows are managed successfully with grouping at weaning and may be placed in individual stalls only for a short period (normally a maximum of 4 hours) during service. Sweden, Norway and Switzerland have also banned the use of individual stalls for sows. In many other countries throughout the EU, commercial farms that use group housing of sows throughout gestation are successfully in operation.

Commercial success from these countries, as well as a large body of scientific evidence, demonstrates that there is no justification for the individual housing of sows after weaning (apart from for a few hours for service). Indeed, aggression is likely to be minimised if sows are returned to their stable social groups as soon as possible after any period of separation (e.g. during farrowing and lactation or for service).

Group housing systems should be designed and managed to minimise aggression and meet the welfare needs of sows by:

- Maintaining stable groups if possible, with minimal mixing of unfamiliar sows
- Where sows are mixed, taking steps to reduce aggression, e.g. by pre-mixing smaller groups of sows before introduction to a larger group, allowing gradual familiarisation of unfamiliar animals (by allowing fence-line contact in an adjacent pen) and providing as much space as possible during mixing
- Where sows are separated, e.g. during farrowing and lactation or for service, minimising the period between separation and reunion
- Provision of adequate space, especially after remixing
- Design of systems to allow opportunities for sows to escape from aggressive interactions, e.g. by providing partitions for sows to hide behind
- Design of feeding systems to minimise competition and ensure adequate feed intake in all sows
- *Ad libitum* feeding with high-fibre diets or provision of permanent access to roughage

¹⁵ McGlone, JJ (2013) Review: Updated scientific evidence on the welfare of gestating sows kept in different housing systems. *The Professional Animal Scientist*, 29:189-198.

¹⁶ Einarsson, S; Sjunnesson, Y; Hulten, F; Eliasson-Selling, L; Dalin, A-M; Lundeheim, N; Magnusson, U (2014) A 25 years experience of group-housed sows – reproduction in animal welfare-friendly systems. *Acta Veterinaria Scandinavica*, 56: 37.

¹⁷ Jang, JC; Hong, JS; Jin, SS; Kim, YY (2017) Comparing gestating sows housing between electronic sow feeding system and a conventional stall over three consecutive parities. *Livestock Science*, 199: 37-45.

¹⁸ Morgan, L; Klement, E; Novak, S; Eliahoo, E; Younis, A; Sutton, GA; Abu-Ahmad, W; Raz, T (2018) Effects of group housing on reproductive performance, lameness, injuries and saliva cortisol in gestating sows. *Preventive Veterinary Medicine*, 160:10-17.

¹⁹ Ren, P; Yang, XJ; Railton, R; Jendza, J; Anil, L; Baidoo, SK (2018) Effects of different levels of feed intake during four short periods of gestation and housing systems on sows and litter performance. *Animal Reproduction Science*, 188: 21-34.

²⁰ Min, Y; Choi, Y; Kim, J; Kim, D; Jeong, Y; Kim, Y; Song, M; Jung, H (2020) Comparison of the productivity of primiparous sows housed in individual stalls and group housing systems. *Animals*, 10: 1940.

- Good quality flooring with a substantial bedded area

Country bans on sow stalls:

- UK complete ban since 1999.
- Bans in Sweden (1988) and Norway (2000).
- Germany: ban with complete phase out by 2028.
- Denmark: Ban on sow stalls for all new housing built after 1 Jan 2015 and to all housing from 1 Jan 2035.
- 20% of US States have banned sow stalls. Arizona, California, Colorado, Florida, Maine, Massachusetts, Michigan, Ohio (by 2026), Oregon, Rhode Island.
- New Zealand bans sow stalls other than for mating, and for no more than 7 days per reproductive cycle.
- Netherlands restricts sow stalls for the period from weaning until 4 days after insemination (note this is a time restriction rather than a ban).

Farrowing crates

- The scientific evidence that *sow* health, welfare and productivity is severely compromised in farrowing crates has been well-established for many years
- There is now also a large body of evidence showing that *piglet* health, welfare and productivity is significantly compromised in farrowing crates and greatly improved in free farrowing systems
- Free farrowing results in healthier sows and piglets and reduced piglet mortality from numerous causes. By coupling this with pens that are designed to reduce crushing – free farrowing systems can deliver equivalent, or even lower, total piglet mortality than crates
- Numerous successful free-farrowing systems exist, many designed in the EU, and are in use in many countries across Europe and globally
- Norway, Sweden and Switzerland have all successfully banned the routine use of farrowing crates.

The farrowing crate

The farrowing crate was first introduced in the 1960s. The aim was to minimise live-born piglet mortality by controlling sow movements, to improve safety for stockworkers, to save space and make manure management easier through slatted flooring behind the sow.^{21 22}

²¹ Baxter, E.M., Andersen, I.L. and Edwards, S.A., 2018. Sow welfare in the farrowing crate and alternatives. In *Advances in Pig Welfare* (pp. 27-72). Woodhead Publishing.

²² Pedersen, L.J., Malmkvist, J. and Andersen, H.M.L., 2013. Housing of sows during farrowing: a review on pen design, welfare and productivity. *Livestock Housing: Modern Management to Ensure Optimal Health and Welfare of Farm Animals; Wageningen Academic Publishers: Wageningen, Gelderland, The Netherlands, 2*, pp.93-112.

Farrowing crates confine sows within bars so that they cannot walk or turn around. A crate typically measures 1.23m²; the crate sits within a pen which houses the piglets but is unavailable to the sow: typical total pen size 3.6m² – 3.95m².^{23 24} The flooring is part or fully slatted and is usually positioned above a slurry pit.²⁵ Suitable bedding is normally not provided for the sow.²⁶ Sows are generally put into a farrowing crate about a week prior to farrowing, until their piglets are weaned at about 4 weeks after farrowing.

The degree of restriction of movement in a farrowing crate, and sow stall, is more severe than for any other animal farmed for food globally. A Scientific Opinion by EFSA in 2007 identified that frustration and stress due to insufficient space is a major welfare risk for farrowing sows.²⁷ As a result of genetic selection for greater production, modern sows are larger and over 50% heavier than they were 30 years ago.²⁸ Consequently, some of today's farmed sows are now the same size, or larger than, the crate itself.^{29 30 31}

An average farrowing crate is smaller in length than the larger sows, and gives only 6cm of space on each side of the sow. There is insufficient space to lie down and stand up normally (20cm too small in both length and width). Research shows that modern sows in farrowing crates have difficulty in lying down and standing, and sustain injuries from the bars and flooring.^{32 33 34}

When sows spend longer periods of time lying down without changing position,

²³ Baxter, E.M., Lawrence, A.B. and Edwards, S.A., 2011. Alternative farrowing accommodation: welfare and economic aspects of existing farrowing and lactation systems for pigs. *Animal*, 6(1), p.96.

²⁴ Pedersen, L.J., Berg, P., Jørgensen, E., Bonde, M., Herskin, M.S., Knage-Rasmussen, K.M., Kongsted, A.G., Lauridsen, C., Oksbjerg, N., Poulsen, H.D., Sorensen, D., Su, G., Sørensen, M.T., Theil, P.K., Thodberg, K. and Jensen, K.H., 2010. Pattegrisedødelighed i DK: Muligheder for reduktion af pattegrisedødeligheden i Danmark. (Piglet mortality in Denmark: possibilities for reducing neonatal piglet mortality in Denmark). DJF Rapport – Husdyrbrug, vol. 86, Aarhus Universitet, Det Jordbrugsvidenskabelige Fakultet, Denmark.

²⁵ Baxter, E.M., Andersen, I.L. and Edwards, S.A., 2018. Sow welfare in the farrowing crate and alternatives. In *Advances in Pig Welfare* (pp. 27-72). Woodhead Publishing.

²⁶ Pedersen, L.J., Berg, P., Jørgensen, E., Bonde, M., Herskin, M.S., Knage-Rasmussen, K.M., Kongsted, A.G., Lauridsen, C., Oksbjerg, N., Poulsen, H.D., Sorensen, D., Su, G., Sørensen, M.T., Theil, P.K., Thodberg, K. and Jensen, K.H., 2010. Pattegrisedødelighed i DK: Muligheder for reduktion af pattegrisedødeligheden i Danmark. (Piglet mortality in Denmark: possibilities for reducing neonatal piglet mortality in Denmark). DJF Rapport – Husdyrbrug, vol. 86, Aarhus Universitet, Det Jordbrugsvidenskabelige Fakultet, Denmark.

²⁷ EFSA 2007. Scientific Opinion of the Panel on Animal Health and Welfare on a request from the Commission on Animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. *The EFSA Journal* (2007) 572, 1-13

²⁸ Moustsen, V.A., Lahrmann, H.P. and D'Eath, R.B., 2011. Relationship between size and age of modern hyper-prolific crossbred sows. *Livestock Science*, 141(2-3), pp.272-275.

²⁹ Moustsen, V.A., Lahrmann, H.P. and D'Eath, R.B., 2011. Relationship between size and age of modern hyper-prolific crossbred sows. *Livestock Science*, 141(2-3), pp.272-275.

³⁰ Moustsen, V.A. and Duus, K.L., 2006. Søers 'rejse og lægge sig' bevægelse i forskellige farestier' (The laying down and getting up movements in sows in different farrowing pens). Meddelelse 733, Landsudvalget for Svin.

³¹ Pedersen, L.J., Berg, P., Jørgensen, E., Bonde, M., Herskin, M.S., Knage-Rasmussen, K.M., Kongsted, A.G., Lauridsen, C., Oksbjerg, N., Poulsen, H.D., Sorensen, D., Su, G., Sørensen, M.T., Theil, P.K., Thodberg, K. and Jensen, K.H., 2010. Pattegrisedødelighed i DK: Muligheder for reduktion af pattegrisedødeligheden i Danmark. (Piglet mortality in Denmark: possibilities for reducing neonatal piglet mortality in Denmark). DJF Rapport – Husdyrbrug, vol. 86, Aarhus Universitet, Det Jordbrugsvidenskabelige Fakultet, Denmark

³² Baxter, E.M., Andersen, I.L. and Edwards, S.A., 2018. Sow welfare in the farrowing crate and alternatives. In *Advances in Pig Welfare* (pp. 27-72). Woodhead Publishing.

³³ Bonde, M., 2008. Prevalence of decubital shoulder lesions in Danish sow herds. Internal Report 12, Faculty of Agricultural Sciences, University of Aarhus, Denmark.

³⁴ Harris, M.J. and Gonyou, H.W., 1998. Increasing available space in a farrowing crate does not facilitate postural changes or maternal responses in gilts. *Applied Animal Behaviour Science* 59: 285-296.

there is an increased risk of developing pressure sores (decubitus ulcers).³⁵

As such, most, if not all, farrowing crates do not comply with Council Directive 2008/120/EC which requires that: “*The accommodation for pigs must be constructed in such a way as to allow the animals to: — have access to a lying area physically and thermally comfortable as well as adequately drained and clean which allows all the animals to ... rest and get up normally...*”³⁶

Restriction of highly motivated behaviours

Domestic sows retain a very strong innate need to nest build prior to giving birth.³⁷ This involves searching for nesting material, digging and rooting out a hollow, and constructing a suitable nest.³⁸ The need to perform nest building is hormonally driven and remains strongly motivated regardless of the environment.³⁹

Farrowing crates, however, prevent adequate nest building.⁴⁰ This causes frustration, stress and poor welfare in sows, evidenced through behavioural and physiological measures. Nesting material is sometimes provided, which is positive, but sows also need adequate space to turn around to properly perform nesting behaviour. Sows in farrowing crates bite the bars⁴¹, have higher stress hormone levels⁴², longer farrowing durations and higher stillbirth rates.⁴³ Free-farrowing sows who can nest build, are shown to have lower heart rate and perform less abnormal repetitive behaviour (e.g. repetitively biting or hitting the snout against the bars).⁴⁴

³⁵ Rolandsdotter, E., Westin, R. and Algiers, B., 2009. Maximum lying bout duration affects the occurrence of shoulder lesions in sows. *Acta Veterinaria Scandinavica*, 51(1), p.44.

³⁶ COUNCIL DIRECTIVE 2008/120/EC of 18 December 2008 laying down minimum standards for the protection of pigs

³⁷ EFSA 2007. Scientific Opinion of the Panel on Animal Health and Welfare on a request from the Commission on Animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. *The EFSA Journal* (2007) 572, 1-13

³⁸ Wischner, D., Kemper, N. and Krieter, J., 2009. Nest-building behaviour in sows and consequences for pig husbandry. *Livestock Science*, 124(1-3), pp.1-8.

³⁹ EFSA 2007. Scientific Opinion of the Panel on Animal Health and Welfare on a request from the Commission on Animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. *The EFSA Journal* (2007) 572, 1-13

⁴⁰ EFSA 2007. Scientific Opinion of the Panel on Animal Health and Welfare on a request from the Commission on Animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets. *The EFSA Journal* (2007) 572, 1-13

⁴¹ Andersen, I.L., Vasdal, G. and Pedersen, L.J., 2014. Nest building and posture changes and activity budget of gilts housed in pens and crates. *Applied Animal Behaviour Science*, 159, pp.29-33.

⁴² Lawrence, A.B., Petherick, J.C., McLean, K.A., Deans, L.A., Chirnside, J., Gaughan, A., Clutton, E. and Terlouw, E.M.C., 1994. The effect of environment on behaviour, plasma cortisol and prolactin in parturient sows. *Applied Animal Behaviour Science*, 39(3-4), pp.313-330.

⁴³ Gu, Z., Gao, Y., Lin, B., Zhong, Z., Liu, Z., Wang, C. and Li, B., 2011. Impacts of a freedom farrowing pen design on sow behaviours and performance. *Preventive veterinary medicine*, 102(4), pp.296-303.

⁴⁴ Damm, B.I., Lisborg, L., Vestergaard, K.S. and Vanicek, J., 2003. Nest-building, behavioural disturbances and heart rate in farrowing sows kept in crates and Schmid pens. *Livestock production science*, 80(3), pp.175-187.

Piglet health, welfare, mortality and productivity in crates and free farrowing systems

Insufficient space for piglets to suckle

Council Directive 2008/120/EC requires that “*piglets must have sufficient space to be able to be suckled without difficulty.*” In order to accommodate this, for a moderate litter of 10 average sized piglets, the total space of the pen should be 280cm length x 200cm width; 5.6m². This is based upon the average size of modern sows and piglets.⁴⁵ Yet by contrast, the median size of pens that contain farrowing crates is 3.95m².⁴⁶

Piglet mortality

A common argument used against using free-farrowing systems is that piglet mortality from crushing will be higher than in crates. However, scientific studies and commercial experience show that in free-farrowing systems, which are well-designed and well-managed, piglet mortality from crushing (live-born mortality) can be comparable with that in crates, and even lower than crates when adjustments for litter size are made.⁴⁷

In Switzerland, where farrowing crates were banned in 1997, and completely phased out by 2007, total piglet mortality has not increased, despite all sows being free farrowing and an increase in litter size.^{48 49} This is because, in free-farrowing systems, there is a significantly reduced risk of piglet losses from various causes other than crushing, including from stillbirths, weakness and starvation. Piglets in free farrowing systems often have higher piglet birth weights and colostrum intake, and heavier weaning weights.⁵⁰

Results improve with experience

Recent research shows that sows' prior experience of farrowing housing system affects their performance in free-farrowing pens. Sows in a free-farrowing pen who had once previously farrowed in the same pen, rather than a crate, gave better udder access to piglets, made fewer dangerous posture changes and nursed their piglets more successfully and for longer.⁵¹ When

⁴⁵ Pedersen, L.J., Malmkvist, J. and Andersen, H.M.L., 2013. Housing of sows during farrowing: a review on pen design, welfare and productivity. *Livestock Housing: Modern Management to Ensure Optimal Health and Welfare of Farm Animals; Wageningen Academic Publishers: Wageningen, Gelderland, The Netherlands*, 2, pp.93-112.

⁴⁶ Pedersen, L.J., Berg, P., Jørgensen, E., Bonde, M., Herskin, M.S., Knage-Rasmussen, K.M., Kongsted, A.G., Lauridsen, C., Oksbjerg, N., Poulsen, H.D., Sørensen, D., Su, G., Sørensen, M.T., Theil, P.K., Thodberg, K. and Jensen, K.H., 2010. Pattegrisedødelighed i DK: Muligheder for reduktion af pattegrisedødeligheden i Danmark. (Piglet mortality in Denmark: possibilities for reducing neonatal piglet mortality in Denmark). DJF Rapport – Husdyrbrug, vol. 86, Aarhus Universitet, Det Jordbrugsvidenskabelige Fakultet, Denmark.

⁴⁷ Baxter, E.M., Lawrence, A.B. & Edwards, S.A. 2012. Alternative farrowing accommodation: welfare and economic aspects of existing farrowing and lactation systems for pigs. *Animal*, 6:1, pp.96-117.

⁴⁸ Weber, R., Keil, N.M., Fehr, M. and Horat, R., 2007. Piglet mortality on farms using farrowing systems with or without crates. *ANIMAL WELFARE-POTTERS BAR THEN WHEATHAMPSTEAD-*, 16(2), p.277.

⁴⁹ Weber, R., Burla, J.B., Jossen, M. and Wechsler, B., 2020. Piglet Losses in Free-Farrowing Pens: Influence of Litter Size. *Agrarforschung Schweiz* 11: 53–58

⁵⁰ KilBride, A.L., Mendl, M., Statham, P., Held, S., Harris, M., Cooper, S. and Green, L.E., 2012. A cohort study of preweaning piglet mortality and farrowing accommodation on 112 commercial pig farms in England. *Preventive veterinary medicine*, 104(34), pp.281-291.

⁵¹ King, R.L., Baxter, E.M., Matheson, S.M. and Edwards, S.A., 2018. Sow free farrowing behaviour: experiential, seasonal and individual variation. *Applied Animal Behaviour Science*, 208, pp.14-21.

producers make a change from crates to free-farrowing pens, performance and results tend to improve over time as not only sows, but also stockworkers, get used to the new systems and the full benefits to production are achieved.⁵²

Progress in Europe

The Danish Ministry has an animal welfare label, all three levels of which require free farrowing (the highest level requiring outdoor free-range farrowing).

Austria and Germany have recently made legislative changes that will permit only temporary use of crates (for around 5-7 days in total), known as 'routine temporary crating'. However, Sweden (1988), Norway (2000) and Switzerland (banned 1997; phased out by 2007) have complete bans on the routine use of farrowing crates. In these countries, sows must be free throughout farrowing and lactation. Confinement of a sow (for a few days only) is permitted in exceptional cases only.

In Finland, a significant proportion of the industry has moved to temporary crating in the past 2 years, supported by a governmental animal welfare subsidy system.^{53 54} However, recently, a Ministry of Agriculture free-farrowing working group concluded that the term 'free farrowing' does not permit routine temporary crating, and that government subsidies will now be restricted to true free-farrowing systems only.⁵⁵ As such, further investments by industry are more likely to involve true free-farrowing pens, rather than temporary crating systems.⁵⁶

Country bans on farrowing crates

- Sweden (1988), Norway (2000) and Switzerland (banned 1997; phased out by 2007) have complete bans on the routine use of farrowing crates. In these countries, sows must be free throughout farrowing and lactation. Confinement of a sow (for a few days only) is permitted in exceptional cases only.
- Austria and Germany have recently made legislative changes that will permit only temporary use of crates (for around 5-7 days in total), known as 'routine temporary crating'. However, Compassion does not support routine temporary crating as this still involves an unacceptable degree of confinement, particularly given that alternatives exist.

⁵² Baxter, E. 2021. Optimising sow and piglet welfare during farrowing and lactation. In: Edwards, S. ed. Understanding the behaviour and improving the welfare of pigs. Cambridge: Burleigh Dodds Science Publishing. *In Press*. Available from: <https://shop.bdspublishing.com/store/bds/detail/workgroup/3-190-89133> Publication date 26 Jan 2021.

⁵³ <https://snellman.fi/fi/meidan-tapamme/jo-neljasosa-snellmanin-emakkotiloista-siirtynyt-vapaaporsitukseen-yksi-viisivuotisenstrategiakauden-paakohtia/>

⁵⁴ <https://www.atria.fi/konserni/ajankohtaista/atriablogi/blogaukset/oikeasti-parempaa-hyvinvointia/>

⁵⁵ <https://mmm.fi/-/vapaaporsitustyoryhman-tyo-valmistunut>

⁵⁶ Pers. comm. Professor Anna Valros 25.11.2020

- In November 2020 the NZ High Court held that the regulations permitting farrowing crates are unlawful and invalid. In response the NZ government announced that farrowing crates will be phased out – full details to be confirmed as yet.