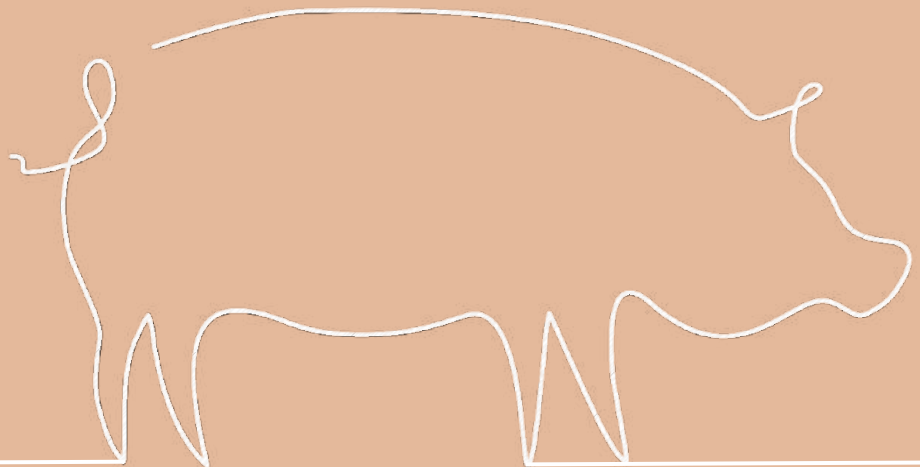


Free-farrowing systems for pigs



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Gilts and sows

Gilts are sexually mature female pigs who have not yet had a litter of piglets. Sows are sexually mature female pigs who have given birth to at least one litter of piglets. Gilts and sows are kept for the primary purpose of breeding.

Gestation is the period that a gilt/sow is pregnant, which can range from 105 to 125 days. Farrowing or parturition is when a gilt/sow gives birth to her litter of piglets. The average litter size for a gilt is 7-12 piglets and for a sow it is 7-14 piglets. Lactation is the period that a gilt/sow nurses her piglets until weaning, which is when piglets are removed from the gilt/sow.

Farrowing

Throughout gestation, farrowing and lactation, the needs of a gilt/sow changes. The biological and behavioural needs associated with farrowing and lactation can be separated into nest-site seeking, nest building, farrowing, nest occupation (early lactation), social integration (late lactation) and weaning.

When provided the opportunity, just before farrowing, a gilt/sow will isolate themselves from the group and seek a suitable nest site. Once a nest site has been found the gilt/sow will forage for suitable nesting substrates and build a nest. This involves digging and rooting to create a concaved depression in the ground and then circling, rooting and lying in it to arrange the nesting substrates (branches, grass, leaves) she has collected. The natural desire to isolate and nest build is a behavioural need that domestic gilts/sows have retained and correlates with hormonal changes that occur in late pregnancy such as increased prolactin and progesterone levels.

Nesting behaviours decrease just prior to farrowing correlating with increases in oxytocin levels that occur at the onset of farrowing. Farrowing typically lasts for 2-3 hours and involves prolonged periods of lateral lying with the gilt/sow occasionally getting up between the birth of each piglet. During farrowing, the gilt/sow begins to produce colostrum due to increased oxytocin levels. Colostrum production and oxytocin levels are then further stimulated by piglets nursing and massaging the udder. After farrowing, colostrum production gradually decreases because of decreasing oxytocin levels and is replaced by milk. The sow remains in the nest site with her piglets for ~2 weeks before re-joining the group and socially integrating the piglets. Piglets will then gradually wean themselves by 3-4 months of age.

Farrowing in commercial production systems

In commercial indoor systems, pregnant gilts/sows are typically moved into a farrowing crate (also referred to as a 'piglet protection pen') ~1 week prior to farrowing and are confined there until piglets are weaned at 3-5 weeks of age. Farrowing crates are metal-barred pens of a similar size to a sow stall but slightly narrower (0.5m x 2m). The crate is designed to limit the movement of gilts/sows during farrowing and lactation so that they have just enough space to stand up and sit down but are unable to turn around. The crate sits within a larger space (total combined area of 3.2m²) which contains a heated creep area for piglets to move into for warmth and avoid being crushed when the sow changes position. After weaning, the sow is then typically placed into a mating stall, which is a crate similar to a sow stall but used specifically for artificial insemination, for up to 5 days following mating and is then returned to group housing (some commercial production systems still use sow stalls for housing pregnant gilts/sows). Sows will usually produce at least two litters a year and remain in this continuous cycle of mating, pregnancy, farrowing, lactation and weaning for their entire productive lifetime (~3 years) after which they are culled.

As well as restricting movement of gilts/sows, farrowing crates are commonly barren without suitable nesting substrate for gilts/sows to perform highly motivated nesting behaviours. Gilts/sows require a substrate that is manipulable prior to farrowing to satisfy their nest-seeking and nest-building behaviours. Nesting substrate provision during lactation is also important for sows so they can perform highly motivated exploratory and foraging behaviours, as well as encouraging these investigative behaviours in the piglets. Where nesting substrates are provided in commercial production systems, long-cut straw is commonly used and appears appropriate for satisfying these nesting and foraging behaviours.

Alternative farrowing systems which do not confine gilts/sows at all or provide some freedom of movement include hinged farrowing crates, farrowing pens or farrowing huts. Hinged farrowing crates are crates which contain a side that can be opened to provide gilts/sows with enough space to turn around during farrowing and lactation or are closed to confine gilts/sows during farrowing but then re-opened post-farrowing. Farrowing pens provide gilts/sows with a crate-free space (often same total combined area of a traditional farrowing crate system of 3.2m²) so they have more freedom to move during farrowing and lactation. In outdoor production systems, farrowing huts located in a designated outdoor area provide gilts/sows full

freedom to move around and often contain a substrate such as straw for bedding and nesting behaviours. Gilts/sows can move in and out of the hut, however a low barrier may be used to prevent piglets going outside for the first few days post-farrowing.

Free-farrowing systems

Free-farrowing systems benefit the health and welfare of gilts/sows and piglets. For a gilt/sow to experience good welfare during farrowing they require a certain amount of space so they can perform highly motivated seeking and nesting behaviours. Both the complexity and quantity of this space is critical to ensuring a gilt/sow can satisfy these behaviours, as well as ensuring there is suitable nesting substrate to facilitate nest building.

The negative welfare effects of confinement during farrowing

- Confinement pre-farrowing, during farrowing and post-farrowing limits gilts/sows ability to move freely and engage in highly motivated behaviours.
- Confinement in farrowing crates increases stress and frustration in gilts/sows. Sows confined pre-farrowing and during farrowing have higher cortisol concentrations than those in free-farrowing systems, indicating increased levels of stress.
- Increased stress pre-farrowing and during farrowing can prolong farrowing times resulting in an increased risk of stillbirths and piglet mortalities post-farrowing.
- Stress and frustration are further increased when suitable nesting substrate is not provided to satisfy nest-building behaviour. Where unable to satisfy nest-building behaviour, gilts/sows will redirect this behaviour and may develop stereotypies such as bar biting.

The positive welfare effects of free-farrowing systems

- Total piglet survival rates, including still births and piglet mortality rates, are comparable between farrowing crate systems that confine gilts/sows and free-farrowing systems.
- Gilts/sows in free-farrowing systems display less pain-related behaviours during farrowing.
- Gilts/sows in free-farrowing systems show increased interactions with piglets.
- Piglets born in free-farrowing systems display more play behaviours and less harmful social (e.g. belly nosing) and aggressive behaviours towards other piglets.
- Providing suitable nesting substrate pre-farrowing and at farrowing decreases the risk of stillbirths.
- Providing suitable nesting substrate encourages investigative behaviours in gilts/sows and piglets and reduces the incidence of stereotypies.
- Providing suitable nesting substrate to gilts/sows during pre-farrowing improves piglets' stress response and reduces the risk of piglets displaying harmful social and aggressive behaviours in the future.
- Best practice low-stress handling methods and regular positive interactions which, promote a positive stockperson-animal relationship can prevent fearfulness and have a direct impact on gilt/sow reproductive performance and piglets behaviour long-term.

The essentials of free-farrowing systems to ensure good welfare for gilts and sows

- A minimum of 2kgs of suitable nesting substrate (e.g. long-stemmed straw) for nesting behaviours should be provided at least 48 hours prior to farrowing. Appropriate foraging substrates should continue to be provided during lactation to satisfy natural foraging and exploratory behaviours.
- The farrowing area should allow gilts/sows to feel isolated and enclosed to satisfy isolation behaviour and allow for undisturbed farrowing (i.e. three solid-sided walls).
- Gilts/sows should be provided with enough space during farrowing and lactation so they can turn around, get up and down easily, lie laterally and interact with piglets. This space should also allow for piglets to comfortably nurse together and lie in a fully outstretched position at the same time while avoiding being crushed when the sow changes position.
- Additional space provision should be provided to allow for nest-seeking behaviours and for gilts/sows to have a separate area to feed, urinate and defecate away from the nest.
- Piglets should have a separate creep area from the gilt/sow and be provided with heating as required to ensure thermal comfort.
- During late lactation, piglets should be provided social contact with other non-litter piglets through both visual and physical contact. The gilt/sow should also be allowed a space separate from the nest that is inaccessible to piglets to encourage piglet socialisation and exploratory behaviours.
- Best practice low-stress handling methods and regular positive interactions should be used to promote a positive stockperson-animal relationship.

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