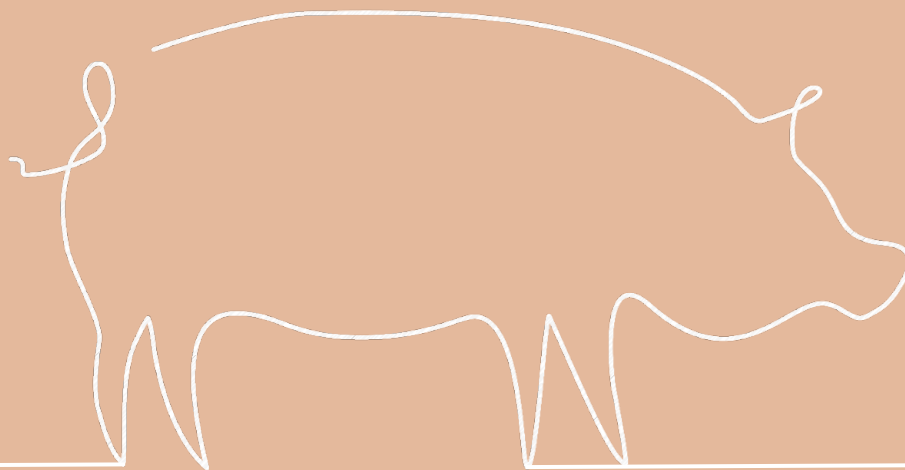


# Environmental enrichment for pigs



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## What is environmental enrichment?

Environmental enrichment is any addition or modification to a housing environment that increases environmental complexity, encourages natural behaviours, and improves biological functioning and overall well-being of pigs.

Effective environmental enrichment should fulfil four criteria:

1. maintain interest and encourage natural behaviours
2. prevent or reduce the frequency of abnormal or stereotypic behaviours
3. increase positive use of the environment
4. improve pigs' ability to deal with behavioural or physiological challenges.

Preferred enrichment objects that encourage exploratory and foraging behaviours in piglets and grower pigs are those that are investigable, manipulable, chewable and edible. Enrichment that is odorous, chewable and manipulable appears to initially attract pigs' attention, but enrichment that is destructible and edible maintains pigs' attention for longer. Strategies which help maintain pigs' interest in enrichment include regularly rotating enrichment, changing the appearance or properties of an object, increasing the difference between the object and the surrounding enrichment, and providing edible rewards on a varying schedule.

Rooting and foraging behaviours are a high priority for pigs and are rewarding natural behaviours to perform. Where denied access to rooting material, pigs are more likely to develop stereotypies and display aggressive behaviours towards other pigs. For enrichment to encourage rooting behaviours it should be chewable, easy to manipulate, changeable and edible. A common feature of appropriate rooting material for pigs are substrates or objects that are edible and in small pieces that can be chewed into smaller pieces.

Pigs demonstrate a preference for bedding substrate over enrichment objects to satisfy foraging and exploratory behaviours. Bedding substrate can provide welfare benefits whether provided as bedding covering a floor area or in smaller quantities such as in a rack or dispenser. Straw has been shown to be preferential material for bedding as it encourages both explorative and manipulative behaviours such as rooting and chewing. Long or half-chopped straw is preferable to chopped straw for pigs to receive the full welfare benefits.

Wallowing is another natural behaviour commonly performed by pigs where the opportunity is provided. Wallowing plays a critical function in thermoregulation and the removal of ectoparasites for pigs and may play other important functions in scent-marking and sexual behaviour. Wallows should be a mixture of both mud and water so that pigs are able coat themselves in a thick coat of mud and be large enough to allow for communal and individual wallowing. The water and mud levels at the border of wallows should be no higher than pigs elbow joint to be accessible and pools should be of varying levels (i.e. shallow and deep) to accommodate different wallowing needs at different temperatures but allow pigs to keep their ear-openings above the surface at all times.

## Piglets and grower pigs

Piglets are young pigs between birth and weaning, which occurs at 3-4 weeks of age. Grower pigs are any pig from the point of weaning until they are sold for slaughter or transferred to a breeding farm, this includes weaners (weaning until ~30kg liveweight), porkers (24-55kg liveweight), baconers (>55kg liveweight), and finishers (>70kg liveweight).

In indoor production systems after weaning grower pigs are kept in groups pens within large sheds. Alternatively, in outdoor production systems (i.e. outdoor bred or free-range systems) grower pigs are housed in large groups either in semi-enclosed barns with deep-litter bedding or outdoor paddocks with shelters.

Pigs have behavioural needs and are highly motivated to perform exploratory and foraging behaviours such as rooting, sniffing, biting and chewing digestible and indigestible materials. Where pigs are housed in barren environments and unable to perform these behaviours, it can result in boredom and frustration, which can lead to harmful social and aggressive behaviour directed towards other pigs, such as nosing and biting, and the development of stereotypies. Stereotypies are abnormal repetitive behaviours that develop in response to stress and frustration when an animal's basic needs are not met. Stereotypies are thought to be an attempt to cope through substitution or distraction. Play behaviour is also particularly important for piglets and grower pigs to improve their adaptability and social skills.

### **Environmental enrichment for piglets and young pigs**

- Providing piglets enrichment early in life can improve their adaptability, reduce fearfulness, and prevent the development of harmful social behaviours during weaning, which is a particularly stressful event for piglets.
- Providing piglets and grower pigs with enrichment early in life has long-term beneficial effects on their adaptive capacity, mental state and immune status.
- Providing piglets and grower pigs with enrichment prevents and reduces the occurrence of damaging behaviours such as tail biting.
- Straw provision of at least 200g/pig/day is needed to satisfy foraging and manipulative behaviours in pigs. Providing straw increases manipulating and forging behaviours performed by pigs and reduces the incidence of oral manipulation behaviours towards other pigs.
- Increasing the space allowance per pig for grower pigs can encourage exploration of the environment and as a result reduce the occurrence of harmful social or aggressive behaviours directed towards other pigs.

### **Gilts and sows**

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

Gilts and sows, like other pigs, have behavioural needs and are highly motivated to perform exploratory and foraging behaviours such as rooting. Pregnant gilts and sows are also highly motivated to engage in natural nesting behaviours such as nest seeking and nest building.

Housing systems for pregnant gilts and sows include group housing and sow stalls. A sow stall is a crate (2m long and 60cm wide) where gilts and sows are housed individually during pregnancy. In sow stalls, gilt and sow movement is severely restricted (i.e. they cannot turn around) and they are unable to perform natural behaviours or interact socially with other pigs. Due to the Australian pig industry's voluntary phase out of sow stalls after the first 5 days following mating (where mating stalls are used), around 80% of producers now utilise group housing systems for pregnant sows instead. Where sow stalls are still in place, regulation requires that they not be used for more than 6 weeks in any gestation (pregnancy) period.

A farrowing crate (or piglet protection pen) is a crate of similar size to a sow stall but slightly narrower, which sows are moved into around a week before farrowing and remain until the piglets are weaned at 3-4 weeks of age. After weaning the sow may be placed into a mating stall for up to 5 days following artificial insemination and then returned to group housing. In outdoor production systems, where gilts and sows are housed in group paddocks, sows are moved to individual farrowing huts for farrowing where they remain until piglets are weaned.

### **Environmental enrichment for sows**

- Enrichment for gilts, sows and piglets during lactation provides opportunities for exploratory and foraging behaviours, nest building, social interactions and improves maternal responses of gilts and sows.
- Gilts and sows require substrate that is manipulatable prior to farrowing to perform nest seeking and building behaviours. Where gilts and sows are not provided the opportunity to perform these behaviours, they may continue to be motivated to nest build even during farrowing.
- Providing straw as a nesting substrate has been demonstrated to be appropriate at satisfying nest building behaviours in sows.
- Providing gilts and sows greater freedom of movement in combination with nesting substrate prior and at farrowing reduces the risk of piglet death during and just after farrowing.
- Providing nesting substrate to gilts and sows during pregnancy improves piglets' stress response and reduces the risk of piglets displaying harmful social and aggressive behaviours in the future. Aggressiveness and nosing behaviours have been shown to occur more frequently in piglets born to sows kept in barren environments.
- Providing nesting substrate encourages investigative behaviours in gilts, sows and piglets and reduces the incidence of stereotypies in gilts and sows.
- Rotating enrichment and providing enrichment with an associative stimulus such as a bell or whistle appear to be useful strategies to help maintain sows' interest in enrichment objects.

## Boars

Boars are sexually mature entire male pigs (>9 months of age) kept for the primary purpose of breeding.

Boars, like other pigs, have behavioural needs and are highly motivated to perform foraging and exploratory behaviours such as rooting. In indoor production systems, boars are usually housed individually in a boar stall or pen. A boar stall is a crate slightly larger than a sow stall (2.4m long and 70cm), and like sow stalls severely restricts boars' ability to move freely or perform natural behaviours. A boar pen is larger than a boar stall and provides boars more freedom of movement (i.e. they are able to turn and walk around). In outdoor production systems, boars are commonly housed in paddocks as individuals or in pairs.

Boars housed in boar stalls suffer the same negative welfare consequences as sows confined in sow stalls including stress, frustration, development of stereotypies and impaired mobility.

### Environmental enrichment for boars

- There is limited research around the use of enrichment for boars. The available research suggests that boars displaying a variety of different behaviours (i.e. behavioural diversity) alone is an insufficient indicator of good welfare for boars, and that the duration and frequency of demonstrated behaviours must also be considered.
- Boars have the same behavioural needs as other pigs, meaning rooting and foraging behaviours are of high priority.
- Due to the limited research available, the enrichment needs of boars and benefits they may provide can be inferred from research in other types of pigs such as growing and finishing pigs.

### The essentials of environmental enrichment to ensure good welfare for pigs

- Pigs must have access to suitable bedding substrate of adequate depth.
- Enrichment must allow pigs the opportunity to perform exploratory and foraging behaviour such as rooting.
- Enrichment objects must be rotated and changed as necessary to maintain pigs' interest and continue to encourage the intended natural behaviour.
- Where straw is used as enrichment, pigs should be provided a minimum of 200g/pig/day.
- Where outdoor access is provided, wallows must be available for all pigs. Wallows must be large enough to allow for both communal and individual wallowing behaviours and maintained so that pigs are able to coat themselves in a heavy coat of mud.
- For gilts and sows at farrowing:
  - Nesting substrate must be provided at least 48 hours prior to farrowing and replaced as necessary while gilts and sows remain in the farrowing accommodation (i.e. until weaning).
  - At least 2kg of suitable nesting substrate (such as long or half chopped straw) must be provided to each gilt or sow to allow for nest-building behaviour.

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