

Animal Research Review Panel Fact Sheet 1

Environmental enrichment for pigs

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Revised: October 2020

1. Purpose of this fact sheet

Environmental enrichment for pigs may enhance their welfare when housed both indoors and outdoors and may be associated with an increase in their physical and mental wellbeing. Fundamental components of pig environmental enrichment include social behaviour and investigation and manipulation activities while foraging and exploring. The purpose of this fact sheet is to: 1) provide details of the benefits of environmental enrichment for pigs, and 2) provide practical environmental enrichment examples that can be used to promote positive pig welfare.

Note

Under the *Animal Research Act 1985* the following condition is placed on accredited research establishments that house pigs: Unless approved by the Animal Ethics Committee, pigs should be housed in enclosures in accordance with the European Convention for the Protection of Vertebrate Animals Used for Experimental and other Scientific Purposes (Appendix A).

2. Benefits of environmental enrichment

The benefits of providing environmental enrichment to pigs include increasing the number and range of normal 'positive' behaviours. It can enhance pig wellbeing by:

- preventing the development of abnormal behaviours that result from boredom and frustration (e.g. stereotypic behaviour, tail biting, ear biting, sham-chewing and aggression)
- promoting positive welfare states and increase a pig's ability to cope with stress
- broadening the range of behaviours expressed
- promoting nest building behaviour
- improving pig performance and reproduction
- improving mental state

3. Suitability of enrichment materials

Before providing pigs with enrichment opportunities, it is important to consider the suitability and safety of enrichment materials. Any material provided to pigs should have one or more of the following attributes:

- deformable, edible, chewable and/or odorous to pigs

- feed-like, preferably with nutritional benefit
- investigable, to allow rooting with their snout
- novel, to create interest
- regularly replaced, rotated, and replenished
- accessible to all pigs and in sufficient quantity

Materials must be clean and hygienic. Soiled materials may cause illness, and pigs will lose interest in items soiled with dung. Ensure materials are fresh and free from mould.

Caution should be exercised when providing artificial materials for enrichment (e.g. toys, plastic items, dog chews) in order to avoid ingestion and gastrointestinal obstruction.

Materials that are not suitable include:

- wood that contains nails, splinters, or paints and chemicals (e.g. treated pine)
- synthetic rope, plastic milk bottles or any other material that may, when chewed, cause intestinal obstruction
- tyres, as these contain wire and rubber
- materials that may harbour biological contaminants. e.g. compost, dog chews, or other animal waste
- substrates that may cause disease, such as mushroom compost, wood wool and peat
- dirty or soiled materials that may contain bird or rodent faeces

4. Social interactions

Pigs are highly social animals that can become stressed when housed individually. Providing pigs with appropriate social interactions can be achieved by housing them in compatible pairs or groups that allow them to express normal social behaviours.

Considerations include:

- housing pigs in stable social groups that are established at weaning and ideally maintained until sexual maturity
- providing enough space, obstacles or short walls for pigs to hide behind and sleep against
- housing sexually mature boars individually, and ideally not adjacent to each other, to avoid stress, aggression, and potential injuries

5. Enrichment opportunities

Pigs are highly motivated to explore so should be provided with a complex environment that promotes natural behaviours such as rooting with their snouts, digging and chewing. If not adequately managed pigs may express undesirable behaviours and develop a poor mental state.

Pigs can become bored quickly, so enrichment activities should be changed frequently (at least 2-3 times per week).

Examples of enrichment opportunities that may promote a positive mental state in pigs include:

- providing adequate space to allow adequate investigation and manipulation

- providing fresh and natural investigation and manipulation materials, which could include one, or a mixture of the following:
 - straw - one of the best options and ideally added daily as long stalks rather than chopped. Even a small amount (7g/pig/day) in a basket or on the floor is worthwhile. Barley straw may be softer and more absorbent than wheat straw.
 - coconut fibre
 - hay
 - peanut shells
 - rice hulls
- natural fibre broom handles or sea grass mats or hessian bags attached to pen walls for pigs to rub against and chew on
- providing grazing opportunities including grass (cut, turf or silage that is free from mould) and browse
- providing a variety of fruit and vegetables throughout the enclosure to promote foraging
- providing natural daylight or lamps to allow the animals to bask
- natural fibre ropes and strong hose tubing connected to the ropes are chewable options
- non-destructible plastic balls of appropriate size to prevent choking. i.e. >10 cm diameter ball for small pigs and 20-30 cm diameter ball for large pigs

6. Other considerations when providing enrichment

When providing the enrichment opportunities, consideration should be given to the following:

- pigs show spatial separation of different behaviours such as lying, feeding and excretion. Enclosures should therefore allow for the establishment of separate functional areas by providing either plentiful space or appropriate subdivision of the enclosure area
- provision of a solid floor in the lying area of the pen to facilitate the provision of rooting and nesting substrates
- bedding contributes to pig welfare by enhancing physical and thermal comfort (except in hot environmental conditions), digestive functioning (by being eaten to provide gut fill and enhance satiety) and foraging and nest-building behaviours
- exercising good hygiene when introducing soil or sawdust into pig pens will help to avoid food safety or biosecurity issues, such as disease associated bacteria (e.g. *Klebsiella*) or parasites
- swill feeding of pigs (i.e. feeding food scraps that may have been in contact with meat or meat products), is illegal due to the significant risks of exotic disease transmission to domestic livestock, including African Swine Fever and Foot and Mouth Disease
- nutrition is a potential factor in tail biting of pigs, and has been associated with either low protein levels or low salt diets. It is important to provide a diet appropriate to the age of pigs (recommended by a nutritionist)

When providing enrichment opportunities for pigs, ensure a sufficient number of items and adequate space is provided so that each pig is able to experience the enrichment opportunity without aggression from other pigs.

7. References

- AHDB Pork (2017) *A Practical Guide to Environmental Enrichment for Pigs: A Handbook for Pigs*. Agriculture and Horticulture Development Board, Kenilworth, Warwickshire, United Kingdom.
- Council of Europe (2006) European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes. Treaty No. 123. Appendix A. Guidelines for accommodation and care of animals (Article 5 of the Convention). Downloaded from: <http://conventions.coe.int/Treaty/EN/Treaties/PDF/123-Arev.pdf>. Accessed 21 January 2020.
- Godyn, D., Nowicki, J. & Herbut, P. (2019) Effects of environmental enrichment on pig welfare—A review. *Animals* (Basel) 9(383): 1-17.
- Kittawornrat A. & Zimmerman, J.J. (2010) Toward a better understanding of pig behaviour and pig welfare. *Animal Health Research Review* 12: 25-32.
- Lahrman, H.P., Faustrup, J.F., Hansen, C.F., De'Ath, R.B., Nielsen, J.P. & Forkman, B. (2019) The effect of straw, rope, and bite-rite treatment in weaner pens with a tail biting outbreak. *Animals* 9(365): 1-15.

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