

PROVIDING ENRICHMENT FOR PIGS

Scientific research shows that investigating their environment and manipulating materials are key behaviours for pigs. They have a highly inquisitive nature. In a natural environment this helps them to obtain experience of a range of potentially edible resources in complex changing environments. Research shows that in a natural environment pigs spend 75% of their daylight hours in activity – rooting, foraging and exploring.

Behavioural problems can arise in pigs when we keep intelligent animals adapted to investigate and learn the workings of complex environments in barren ones. Providing a concentrated diet doesn't take away pigs' drive to root.

When suitable manipulation materials are not available, pigs are likely to direct their tactile behaviour towards pen mates, e.g. tail- or ear-biting.

EU law provides that pigs *“must have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities, such as straw, hay, wood, sawdust, mushroom compost, peat or a mixture of such...”*.

The law does not require farmers to provide one of these six materials, but if another material is used, it must be as effective as those listed in enabling pigs to engage in *“proper investigation and manipulation activities”*.

EU law also prohibits routine tail docking; it provides that before carrying out tail docking, farmers must first try to prevent tail biting by changing *“inadequate environmental conditions or management systems”*. Scientific research shows that the main cause of tail biting is a barren environment and the absence of straw or some other appropriate material. Good enrichment materials will not on their own prevent tail biting but farmers are very unlikely to be able to prevent tail biting without providing effective enrichment materials.

Two questions must be considered when assessing whether or not a particular type of enrichment material is effective:

- Does it enable proper investigation and manipulation activities?
- Does it reduce tail biting?

The most successful materials in maintaining a pig's interest are those that are destructible, deformable, edible, chewable and odorous. Enrichment materials must be kept dung-free.

Which materials satisfy pigs' behavioural needs and the law?

Straw

A deep bed of straw is probably the best enrichment material. It should be topped up regularly with fresh straw to retain the pigs' interest. Even using small amounts of fresh material can be effective in providing novelty.

Straw can also provide comfort and warmth and supplement the pigs' diet. However, in hot weather pigs must also have areas in which they can cool down.

The provision of plentiful straw need not be confined to small niche farms. Brydock Farms in Scotland, whose parent company is Vion UK, produces 4,000 finished pigs per week. Brydock's pigs receive fresh straw in their pens daily once they have broken down the bales provided for them on arrival in the pen. For further information visit:

http://www.europeanfarmersnetwork.org/files/efn/documents/case_studies_1_0.pdf



Pig farm in France

Photo © Jim Philpott

Deep beds of other edible fibrous materials such as ground wood, rice hulls or peanut shells can also maintain active foraging interest.

Farmers in hot countries are concerned that straw does not enable pigs to cool down. When straw is used in hot climates it should not cover the whole of the floor and pigs should have access to water for wallowing to enable them to cool down.

A number of farms in southern Brazil which has a relatively hot climate use deep bed systems based on peanut shells, rice hulls or ground wood. Often the pigs are housed in open-sided buildings with curtains.



Growing pigs on deep litter in Brazil



Weaners on peanut shells in Brazil

Straw in a dispenser or rack, though not as effective as straw on the floor, can to some degree maintain pigs' attention and help reduce tail biting. The straw should be topped up daily.

One study that looked at a partly slatted system describes a dispenser consisting of a metal tube (height: 77.0cm, diameter: 29.0cm) with a chain mail basket underneath (height: 17.0cm). The dispenser was attached to the pen side over the solid floor area approximately 3.0m away from the front of the pen, so that the chain mail basket was at pig head level. The dispenser was filled with long straw that the pigs could root and pull through the chain mail. A metal tray (57.5cm x 56.0cm, edge of 4cm) was attached to the pen side on the floor underneath the dispenser to catch straw that fell down.

Although this dispenser was used in a partly slatted system, it could be used in a fully slatted pen provided that a metal tray or a wooden board was placed on the slats to catch straw that fell down.



Straw dispenser

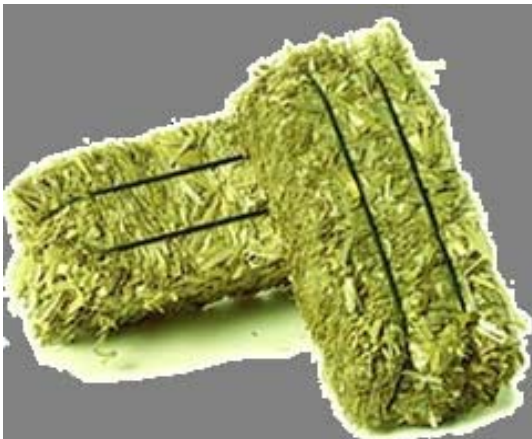
Photo © Dr Heleen van de Weerd

Straw is most effective when:

- **some new straw is added daily, and**
- **the straw is long, not chopped.**

However, any straw is better than none.

Compressed blocks or logs of straw and hanging metal baskets with long straw can also be helpful, though not as effective as a deep bed of straw



Bundles – take longer to dismantle

Racks with spent mushroom compost have also been successful in significantly reducing tail biting. Pigs can release particles of compost by nosing the metal grid at the bottom of the rack from below while standing or sitting.

In one study a rack with spent mushroom compost was provided for pigs kept on fully slatted floors. The horizontal rack was 1,800mm x 600mm with 30mm² grid size suspended above the pigs' heads within reach of the pigs. The rack height was adjusted as the pigs grew. Initially it was suspended 60cm above the ground and as the pigs approached slaughter weight, rack height was increased to approximately 75cm.

Pigs' foraging behaviour includes investigating, manipulating, breaking up and consuming. So, materials that are edible or have nutritional value are among the most effective enrichments.

Maize silage has been shown to be effective in stimulating pigs' explorative behaviour, perhaps because it is nutritious and varied.

If too little of the chosen enrichment material is provided, the amount available may diminish to such an extent that too little is left before it is next topped up. This will result in the pigs losing interest in the material and possibly redirecting their behaviour towards their pen mates.

Wood shavings/wood chips (*Canadian bedding system*)



This Dutch farm provides a thin layer of about 5-10cm of ground wood placed on the floor.

Photo © Jorg Broenink, farmer, the Netherlands

Other materials that can to some extent be effective in providing enrichment and reducing tail biting

A range of other materials can be helpful though none is likely to be as effective as a deep bed of straw. In order to provide variety and maintain the pigs' interest, it is good practice to:

- use two or more of these enrichments at any one time
- introduce new materials from time to time as pigs quickly (sometimes within one or two days) lose interest in the less effective materials.

These other materials include:

Wood – this should be soft wood as hard wood is difficult to chew and deform. Wood could be:

Logs

Two brackets can be attached to the pen side allowing a log to be placed vertically between the brackets and the pen side; the lower end of the log is at floor level. Or a U-shaped plastic tube or moulding can be attached to the pen side to hold the log vertically in place; the bottom of the tube or moulding should be several centimetres above the floor so allowing the lower end of the log, which rests at floor level, to be accessible to the pigs.

Branches

Bark/mulch

Wood wool – made from slivers, cut from logs

(Wood wool: Wikipedia)



Coconut fibre



Ropes: Research using manila ropes found that although pigs devoted large amounts of time to exploring, chewing and ingesting ropes, levels of tail biting were still relatively high.

Food enrichment

The following section on food enrichment, the photos in it and some of the other photos in this booklet are reproduced by kind permission of the British Pig Executive (BPEX).

Food enrichment –principles

- 1) Keeps the pigs occupied for much longer than when all food is supplied in one place or in meals;
- 2) A more natural behavioural activity, leaving less time to chew the pen or each other;
- 3) Use food from pigs' daily ration or introduce novel foods.

Portion of daily ration

- mixed in with daily fresh straw
- feed on the floor provided it is clean enough and in small groups
- in lumps of wood or destructible objects
- use a roller in liquid feed so pigs can root to get food
- in Edinburgh foodball (designed to deliver small food rewards in response to being rooted) or strong dog toy.



Possible foods to add:

Grass:

- ✓ cut
- ✓ turf
- ✓ silage

Herbal mineral blocks

Salt licks



Seaweed

Herbs

Fruit/vegetables

Solid foods:

✓ beet



✓ turnip



✓ swede

Scatter in small pieces or whole, attach to pen sides, or put into a rack

Materials that are ineffective *on their own* in providing enrichment and reducing tail biting

Scientific research shows that metal chains and car tyres are ineffective, quickly losing their novelty value. The European Food Safety Authority (EFSA) has concluded that toys such as chains, chewing sticks and balls are not effective enrichment materials.

EFSA has stressed that since indestructible objects such as chains or tyres are not sufficient to provide for the manipulatory need of pigs, they may be used as **supplement** to destructible and rooting materials but not as a **substitute** for them.

The key point is that chains can be of value as **supplements** but are not adequate **on their own** because they are not destructible or edible. However, many farmers who provide straw find pigs like to use chains as well; the way the end links can move past each other in the pig's mouth appear to engage their interest.

EFSA has also stated that home-made plastic objects (such as 'helicopter' toys) or commercial equivalents (such as the Bite Rite™ plastic 'chew-toy') *"appear to be relatively ineffective at preventing tail biting"*. A leading study found that pigs given the Bite Rite™ had a higher prevalence of tail biting than pigs given a full bed of straw or a dispenser providing straw. If the Bite Rite™ is provided, it should not be used on its own but as a supplement to other more effective materials.

Studies show that even when four toys are provided, pigs only spend 1.4% of their time interacting with the toys, whereas pigs will spend around 20% of their time interacting with straw or maize silage.

New or replacement housing

Any new housing or replacement of existing housing should be designed with a view to achieving compliance with the law regarding enrichment materials. In particular, farmers should consider whether the flooring that they plan to install will permit them to comply with the requirement to provide enrichment materials that *"enable proper investigation and manipulation activities"*. Farmers should not provide new flooring which is highly likely to make it very difficult for them to comply with this legislation.