

# A Practical Guide to Environmental Enrichment for Pigs

A handbook for pig farmers





## Introduction

This guide aims to give practical advice to pig farmers surrounding the complex issue of providing suitable environmental enrichment to pigs. It provides useful information from the knowledge of farmers, researchers and scientific literature on the different ways environmental enrichment can be provided for differing types of housing and systems. The information is set out in sections by housing type, and in each, the types of enrichments that are most suited to each system are discussed, including their properties, how to present the enrichment, quantities and practical considerations, such as ease of installation, maintenance and costs.

Although environmental enrichment is the primary focus of this guide, this is just one aspect of a pig's environment. It is important to get other aspects right too, including ventilation, nutrition, health, water provision and stocking density. All will contribute to improved production and reduce the risk of abnormal and injurious behaviours, like tail biting.

### What is 'environmental enrichment'?

Environmental enrichment is the term used to describe the changes (modifications or additions to the pigs' surroundings) that are designed to improve the living conditions of the animals, by encouraging the demonstration of a wider range of normal pig behaviours.

From a practical viewpoint, it is providing objects or materials for proper investigation and manipulation in order to keep pigs occupied in non-harmful behaviour.

### Why is it important?

Pigs are naturally curious and social animals that, despite many years of genetic selection, are still highly motivated to explore their environment as they would in their natural woodland habitat. Pigs explore by rooting, biting, chewing and sniffing food and indigestible items. In semi-natural surroundings, pigs spend 75% of their time in activities such as burrowing, foraging and exploring<sup>1</sup>. Hunger is not the only motivation for this behaviour; even ad lib fed pigs perform these exploratory activities.

There are many reasons to enrich the environment of pigs<sup>2</sup>:

- To reduce the frequency of abnormal behaviour (tail biting, biting, aggression)
- To increase the pigs' ability to deal with challenges in a much more normal way

- To broaden the range of behaviours expressed
- To improve animal performances (feed intake, average daily gain (ADG) and feed conversion ratio (FCR))
- To reduce stress in the animals

Enrichment can impact significantly on the productivity of pigs. The average daily food intake is higher for pigs living in an enriched environment, and their growth rate is higher; all of which translates to increased net weights of meat and higher back-fat levels<sup>3</sup>. Pigs raised in enriched housing also react less aggressively to changes in their surroundings<sup>4</sup>. In this respect, they are less nervous and fearful when a change occurs in their daily lives, which in turn makes for easier handling of the animals<sup>5,6</sup>. Thus, providing pigs with a sufficient quantity of suitable materials to enable them to fulfil their innate need to bite, root and manipulate is important for their welfare.

### What happens if the enrichment is unsuitable or ineffective?

When suitable manipulation materials are not available to explore, pigs can become bored, stressed and/or frustrated, and sometimes they direct their curiosity towards something else, often pen-fittings or their pen mates, resulting in unwanted behaviours such as ear, flank, vulva or tail biting.

## Legislation

The welfare of pigs in the UK is governed by the [Animal Welfare Act 2006](#)<sup>7</sup>. The need to provide environmental enrichment is laid down more specifically in [The Welfare of Farmed Animals \(England\) Regulations 2007 \(as amended\)](#)<sup>8</sup> and similar legislation in the devolved administrations. This makes it a legal requirement for pig farmers to provide pigs at all production stages, including sows, with permanent access to environmental enrichment materials in “...a sufficient quantity of material to enable proper investigation and manipulation activities... which does not compromise the health of the animals”.

In addition to the above, the [Council Directive \(EU\) 2008/120/EC](#)<sup>9</sup> lays down minimum standards for their protection; recognising the importance of foraging and investigative behaviour for pig welfare, and the [Commission Recommendation \(EU\) 2016/336 of 8 March 2016](#), also sets out guidance to reduce the need for tail docking<sup>10</sup>. In particular, it outlines key characteristics that environmental enrichment materials for pigs should have and how they should be presented. These key properties are covered in a later section of this guide.

## Farm assurance schemes

All the main farm assurance schemes in operation within the UK include standards on the provision of enrichment for pigs. However, these standards may or may not be set above compliance with minimum legal standards. It is important for farmers producing under farm assurance scheme standards to ensure that they familiarise themselves with the most recent requirements of the particular scheme to which they are part of.

## Key characteristics of enrichment materials for pigs

When selecting the type of enrichment to provide for pigs, several points need to be considered. Firstly, the materials or objects chosen must be examined to ensure they will not cause any health problems and are safe for both pigs and stockpersons. (A later section of this guide provides a list of items that are no longer suitable to provide to pigs as environmental enrichment and should not be used.)

Enrichment materials should fulfil the following attributes<sup>9,10,11</sup>:

- **Edible or Feed-like** – so that pigs can eat or smell them, preferably with some nutritional benefits
- **Chewable** – so that pigs can bite them and also provides information on taste/odour
- **Investigable** – so that pigs can investigate them, allowing pigs to root with their snout
- **Manipulable or Deformable** – so that pigs can change their location, appearance or structure

Enrichment objects or materials placed in pig pens will be more interesting to pigs for longer if they have some or all of the above properties. Novelty is key to maintaining a pig's interest in an object beyond it first being placed in the pen.

Therefore, in addition to the characteristics listed above, enrichment materials should be provided in such a way that they are<sup>9,10,11</sup>:

- **Of sustainable interest** – enrichments should encourage the exploratory behaviour of pigs and be regularly replaced, replenished or rotated with different materials, to maintain this over time
- **Accessible** – for oral manipulation to all pigs at all times and presented at a height that pigs can easily interact with them, yet be kept clean
- **Given in sufficient quantity** – for any pig to gain access when they are motivated to do so, and so as not to generate competition between pigs
- **Clean and hygienic** – or pigs will rapidly lose interest in enrichment materials that are soiled with dung, to ensure enrichments do not compromise the health of the pigs

In order to fulfil pigs' essential needs, enrichment materials and objects should meet **all** the characteristics listed above to comply with the legal requirements. This means that if the enrichment provided does not have all of those properties, a combination of materials that together have all those characteristics is essential.

A large range of materials can be used for the enrichment for pigs. To help assess the effectiveness of different materials, and the way they are presented, to meet all of the above characteristics, enrichment materials should be categorised as<sup>9,10,11</sup>:

- **Optimal materials** – materials possessing all the characteristics listed above, and so can be used alone
- **Suboptimal materials** – materials possessing most, but not all, of the characteristics listed above, and should be used in combination with other materials
- **Marginal interest** – materials providing distraction for pigs, which should not be considered as fulfilling their essential needs, and so optimal or suboptimal materials should also be provided

## Materials that are ineffective on their own as enrichment for pigs

Materials categorised as suboptimal or of marginal interest should not be used on their own as pig enrichment materials.

Suboptimal materials used as bedding (eg wood shavings, shredded paper, soil and sand) usually meet the needs for investigation and manipulation but are not necessarily edible or chewable. A combination of materials (eg natural ropes, root vegetables, forage in racks, compressed straw in cylinders, hessian cloth bags, rubber or plastic items, commercially available toys, chains or wood) should be used in systems where bedding cannot be provided as a source of enrichment.

Materials of marginal interest include objects such as hard plastic piping or chains. They can provide distraction but should not be considered as fulfilling the essential needs of the pigs. Other materials should also be provided.

## Items not suitable as enrichment for pigs

All enrichment materials provided must be safe and not compromise the health of the animals. There are a number of items that are no longer suitable to provide to pigs as environmental enrichment and should not be used. Listed below are some examples of unsafe materials:

- **Wood that is non-virgin** – this can contain sharp objects, eg nails or splinters from older, dried wood, etc. which can hurt pigs when chewing and can be treated with chemicals that are toxic to pigs (eg railway sleepers)
- **Synthetic rope** – if swallowed in pieces it may cause intestinal obstruction
- **Tyres** – as some may contain wire or metal strips which could cause harm to the pigs
- **Materials with the risk of biological or chemical contaminants** – eg peat/mushroom compost that can harbour disease-causing agents or dog chews like pig ears, which are made from animal products, as these could present a disease risk to pigs
- **Dirty or soiled enrichment objects** – which may provide a reservoir for disease-causing agents

## Additional practical considerations

It is also important that the enrichment material or object chosen is compatible with the farm system. For example, it must suit the flooring found in the pens and ensure that materials do not fall through slats and risk blocking slurry removal systems. As a general rule, substrate enrichments are best suited to solid-floored pig housing systems and object-based enrichments can be effective for pigs kept in systems with slatted floors.

The installation of enrichments must be well thought out, not just to ensure they remain of sustained interest to the pigs, but that they are also easily sourced, maintained or replaced, cost effective, easy to store and install, and safe for the stockperson too. It is important that any suspended enrichments are at the correct height. Studies have shown objects suspended at eye-level are manipulated more than items left on the floor<sup>12,13</sup>. This makes it possible to keep the items cleaner and also the pigs interested for longer.

The different ways environmental enrichment can be provided for differing types of housing and systems are presented in the following sections of this guide. Information on the types of enrichment materials that are most suited to each housing system are discussed, including their properties, ideas on how to present the enrichment, quantities to provide and practical considerations, such as ease of installation and maintenance.

## Types of enrichment

### Substrates used as bedding

Good quality straw as bedding is reported in several studies to be an excellent choice, as it satisfies all five of the criteria for good enrichment materials. It is safe, edible, chewable, investigable and manipulable. Thus, it is considered to be an optimal enrichment material that can be used alone. Studies show that straw stimulates and increases exploratory behaviour, as long as it is regularly replenished and of good quality (eg not mouldy or wet)<sup>14</sup>. Bedding (straw or other) has the highest potential to provide successful enrichment<sup>15</sup>.

However, straw is not always practical as a bedding material, being more suited to solid floored housing, where it will not adversely affect slurry systems. It is generally considered that supplying straw where possible in smaller quantities, as a non-bedding form of enrichment (eg in racks or feeders) is better than no straw at all<sup>14</sup>.

Other materials can also be used for bedding, including hay, elephant grass (miscanthus), wood shavings, shredded paper or silage and can also be used effectively, offering all the main properties that pigs find attractive.

### Enrichment material not used as bedding

For some systems, straw or bedding materials can be problematic if it passes into slurry systems. However, these materials could still be provided with different presentation, such as small amounts of straw chopped, in racks or compressed into cylinders. This allows pigs to root and forage and has been demonstrated to reduce the development of tail biting<sup>15</sup>. In studies, when pigs are offered several different materials, straw is not always the preferred choice<sup>16,17</sup>. This means that when substrate dispensers are used as enrichment alternatives to a straw bed, materials other than straw might be equally suitable or even more attractive to pigs.

In housing systems where materials for bedding cannot be provided as a source of enrichment, various foodstuffs like hay, silage or root vegetables can be used to offer different forms of stimulation provided in racks or novel containers, where only small amounts can be accessed at a time, encouraging them to be consumed rather than wasted through slats. If liquid feeds are fed, a roller in the trough could be used, allowing pigs to root to get food.



Alternatively, enrichments in the form of objects like, sisal rope, wood, rubber or plastic items, balls, toys, pipes, hose, chains and some commercially available items (ie foraging towers, Weda rooting cones or Bite Rite™) can be provided.



**NOTE:** Some of these will need to be used in combination with other enrichments, as presented alone they do not fulfil all the properties listed above to be considered optimal enrichment, nor do they meet the legal minimum requirements. Combinations of enrichment (such as a combination of ropes with wood or chains and rubber hoses) can also be effective forms of enrichment<sup>18</sup>. Pigs will very quickly lose interest in them though, if they are not varied regularly or kept clean. However, they can be of value as supplements to other edible, investigable and manipulable materials.

Varying the enrichment regularly is a good way to stimulate and prolong the pigs' interest in the materials and items offered.

In the following sections of this guide are some suggestions for enrichment materials, how they may be provided, and some practical considerations. It is not an exhaustive list and a range of other materials can be used. Any materials provided (either alone or with additional enrichment) should fulfil the minimum legislative requirements and allow for “...*proper investigation and manipulation activities... which does not compromise the health of the animals*”.

## How best to provide enrichment materials on your farm

We know what properties good enrichment materials should have, but some are better suited to some pig housing systems than others. The following sections of this guide will show a wide range of enrichment options and discuss their properties and suitability for use in different pig housing systems.



Three different types of enrichment (EUWelNet)

**Indoor – on straw**

Introduction	12
Loose housed dry sows	13
Farrowing pens	19
Weaners in straw based pens and yards	23
Growers and finishers in straw based pens and yards	29

## Indoor – on straw

For pigs housed loose in yards or pens with clean straw provided as bedding material, so long as the straw is provided in good quantities, it is generally accepted as adequate enrichment. Good quality straw is an excellent choice as it satisfies all five of the criteria for optimal enrichment materials. It is safe, edible, chewable, investigable and manipulable. However, it can be of benefit to the welfare of the pigs to provide additional items of enrichment, even when stock is housed on straw.



Sow with straw bedding  
(AHDB Pork)

### Things to consider when using straw as bedding/ substrate:

As a general rule, substrate enrichments are best suited to solid floored pig housing systems.

Straw can provide comfort and warmth, supplement the pigs' diet as well as provide environmental enrichment.

Straw is most effective when added daily and is long rather than chopped<sup>14</sup>.

**Table 1 – Things to consider when using straw:**

<b>Quality of the straw?</b>	Should be clean and dry and free from mould. Barley is preferable to wheat.
<b>How much to use?</b>	Enough to provide clean deep straw beds or as much as space allows. Even small amounts of fresh straw can be effective in providing novelty.
<b>How often do you add new straw?</b>	Yards – once a good deep straw bed is established, many producers leave intact straw bales for the pigs to explore and ultimately break up over time. Pens – once a good deep straw bed is established, top up with smaller amounts daily.
<b>How often do you muck out?</b>	Depends entirely on the system, but beds should not be allowed to get wet and dirty, as this provides a reservoir for infection.
<b>What about hot weather?</b>	During hot weather, try to ensure there is an area of concrete exposed that is large enough for all pigs to lie on. Straw should still be provided, but not in the quantities usually used.

## Loose housed dry sows

The majority of indoor breeding stock in the UK are loose housed in yards or pens with clean straw provided as bedding material. If the straw is provided in good quantities, this is generally accepted as adequate enrichment.

Suggested additional materials for how to provide “additional” enrichment for dry sows loose housed on straw can include:

### More straw

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Add a bale to the pen or present as bedding.</li> <li>• Provide as much as space allows.</li> <li>• Once broken down, replenish with another bale.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be provided on its own.</li> <li>• Must be kept clean and dry.</li> <li>• In high temperatures, lots of straw as bedding might increase the risk of heat stress, so may need to also provide areas without straw where the pigs' can cool down.</li> <li>• Significant cost and time associated with use.</li> </ul>

### Vegetation (eg grass cuttings, hay, silage)

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Add to the pen or present as bedding.</li> <li>• Provide enough to avoid competition and squabbling.</li> <li>• May require replenishing up to twice a day.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be provided on its own.</li> <li>• Must be kept clean and dry.</li> <li>• Plays a role in physical comfort and thermal regulation but may increase the risk of heat stress in hot weather.</li> <li>• Significant cost and time associated with use.</li> </ul>

## Fresh wood (virgin – recently cut not dried)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Add to the group as objects. Can be suspended (for example, by a chain) at pig head height or left at floor level.
- Wood can be put into a holding tube or attached to a wall using a hook.
- The size of the wooden pieces should be proportional to the size of the pigs.
- Provide enough pieces to avoid competition and squabbling.
- Replace weekly or more often – as required.

### Practical considerations

- Make sure there are no sharp edges and that the wood is not dried or splintering, and will not cause harm to the pigs or the pen.
- Fresh cut softwood stimulates more interest as it is more odorous.
- Hardwoods can be harder to chew.
- Pigs can manipulate wood better if it is suspended.
- Wood pieces should not be included in the muck heap, as they could damage the muck spreader equipment.
- **Avoid yew, it is poisonous to livestock.**
- Should be complimented by edible and investigable materials.

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Can be wound around the bars of gates or pen fittings, or suspended vertically. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1m (40in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
  - About 20cm (approx. 8 inches) of rope touches the floor.
- Provide enough rope pieces to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Comes in various thicknesses – the thicker the better.
- Be careful not to let sections of rope get included on muck heap, as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.

## Strong hosepipe

Marginal (chewable and manipulable – not edible or investigable)



### How to present it

- Can be wound around the bars of the gates, suspended vertically or fixed to the pen walls.
- Provide enough hosepipe to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Be careful not to let sections get included on muck heap, as they could damage the muck spreader equipment.
- Should be changed regularly to try to maintain pigs' interest.
- Should be complimented by optimal or suboptimal materials.

## Plastic dog/pig toys

Marginal (may be chewable and manipulable depending on design – not edible or investigable)



### How to present it

- Present either suspended on rope or chain or given loose in the pen.
- Provide enough toys to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another toy or enrichment material. Can vary suspending toys and providing them loose. Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest. Should be changed regularly to try to maintain pigs' interest.
- Minimal installation in terms of time. Can range in cost from cheap to expensive.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

## Paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Paper can be provided shredded or as sheets, either loose as a partial bedding or from a side mounted rack. Cardboard can be as sheets or as boxes, usually provided loose in the pen.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Shredded paper can be obtained at a cost.
- Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by edible and investigable materials.

## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be provided either loose in the pen or in a tray/dispenser/rack, attached to the side of the pen or suspended.</li> <li>• Provide as available, with enough to avoid competition and squabbling.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Be careful not to provide too much and consider supplementary nutritional value to overall rations.</li> <li>• Depending on the season, some surplus vegetables can cost and need replacing regularly.</li> <li>• Significant cost and time associated with use.</li> <li>• <b>Avoid parsnips as they are toxic to pigs.</b></li> <li>• <b>Must not be kitchen waste.</b></li> </ul>

## Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – of limited edible and investigable quality)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be provided suspended on rope, tied to gates or attached to pen walls.</li> <li>• Provide as available, with enough to avoid competition and squabbling.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Cloth sacks made of natural materials and fibres are best.</li> <li>• Costs can be from 50p/sack.</li> <li>• Be careful not to let sections get included on muck heap, as they could damage the muck spreader equipment.</li> <li>• Should be complimented by edible and investigable materials.</li> </ul>

## Footballs/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Present either suspended on rope/chain or given loose in the pen.</li> <li>• Provide enough to avoid competition and squabbling.</li> <li>• Once pigs begin to show no interest, replace with another object or enrichment material. Can vary suspending balls or wellingtons and providing them loose.</li> <li>• Replace when required (ie if damaged or soiled).</li> </ul>	<ul style="list-style-type: none"> <li>• If provided loose in the pen, toys can become quickly soiled and reduce in interest.</li> <li>• Minimal installation in terms of time and cost.</li> <li>• Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.</li> <li>• Some commercial items available.</li> <li>• Should be complimented by optimal or suboptimal materials.</li> </ul>



Producers can introduce some of the items listed in this section to their stock housed on straw even when they appear comfortable and settled. Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Dry sows group housed in straw for bedding, with further straw bales added for enrichment (AHDB Pork)

### How to be confident that the enrichment is appropriate

Signs of insufficient enrichment could include:

- More aggressive behaviour directed to their pen mates.  
This can include fighting or chewing and biting, eg ears, flank and tail
- Excessive drinking or chewing on nipple drinkers
- Biting or chewing at pen fittings
- Unsettled pigs
- Increased noise

All of the above could also indicate the early signs of a health breakdown.



## Farrowing pens

Farrowing pens tend to be bedded with straw and provided it is of good quality and quantity, it should provide adequate enrichment for both sows and piglets. As with loose housed dry sows, additional materials and objects can be added as required to stimulate interest for the sow and piglets.

Suggested additional materials for how to provide “additional” enrichment for farrowing pens can include:

### More straw

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add handfuls or bale sections to the pen or present as bedding (in creep area/ boxes for piglets as well as pen for sows).
- Provide as much extra as space and system allows, but ensure piglets do not get lost in the straw. A deeper bed can be provided as piglets grow.
- Replenish/top-up daily.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- Can provide piglets with thermal comfort. In high temperatures, lots of straw as bedding might increase the risk of heat stress, so may need to also provide areas without straw where the sows can cool down.
- Significant cost and time associated with use.

### Vegetation (eg grass cuttings, hay, silage)

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add to the pen or present as extra bedding once piglets are 2-3 days.
- Can also provide in trays, racks or dispensers for sows.
- Provide enough to avoid competition and squabbling.
- May require replenishing up to twice a day.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- Plays a role in physical comfort and thermal regulation if provided as bedding, but may increase the risk of heat stress in hot weather.
- Significant cost and time associated with use.

## Fresh wood (virgin – recently cut not dried)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Add to the pen as objects. Can be suspended (for example, by a chain) at pig head height or left at floor level.
- Wood can be put into a holding tube or attached to a wall using a hook.
- The size of the wooden pieces should be proportional to the size of the pigs.
- Provide enough pieces to avoid competition and squabbling.
- Replace weekly or more often, as required.

### Practical considerations

- Make sure there are no sharp edges and that the wood is not dried or splintering and will not cause harm to the pigs or the pen.
- Fresh cut softwood stimulates more interest as it is more odorous. Hardwoods can be harder to chew and so is not suitable for young piglets.
- Pigs can manipulate wood better if it is suspended.
- Wood pieces should not be included in the muck heap as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.
- **Avoid yew, it is poisonous to livestock.**

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Can be wound around the bars of gates or pen fittings or suspended vertically. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1m (40in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
  - About 20cm (approx. 8 inches) of rope touches the floor.
- Provide enough rope pieces to avoid competition and squabbling. Replace when required (ie if damaged or soiled).

### Practical considerations

- Comes in various thicknesses – the thicker the better.
- Be careful not to let sections of rope get included on muck heap, as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.

## Shredded paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Paper can be provided shredded as a partial bedding or from a side mounted rack. Cardboard can be as sheets or boxes, usually provided loose in the pen.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Shredded paper can be obtained at a cost.
- Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by edible and investigable materials.

## Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – of limited edible and investigable quality)



### How to present it

- Can be provided suspended on a rope, tied to gates or attached to pen walls.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Cloth sacks made of natural materials and fibres are best.
- Costs can be from 50p/sack.
- Be careful not to let sections get included on muck heap as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.

## Wood shavings

Suboptimal (investigable and manipulable – but offer limited chewable and edible qualities)



### How to present it

- Can be provided loose in pen or creep area as a few handfuls daily or as bedding from day 2-3 onwards.
- Replace as frequently as required or daily.

### Practical considerations

- Be aware that large amounts may block slurry systems.
- Wood shavings should not be treated, as they may be toxic to pigs.
- Shavings can cause gut blockages in young piglets should they ingest them.
- Significant cost and time associated with use.
- Should be complimented by more edible and chewable materials.

## Football/s/ wellington boots/ plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



### How to present it

- Present either suspended on a rope/ chain or given loose in the pen.
- Provide enough to avoid competition and squabbling.
- Can vary suspending balls, other plastic items or wellingtons and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest.
- Minimal installation in terms of time and cost.
- Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

Producers can introduce some of the items listed in this section to their stock housed on straw even when they appear comfortable and settled. Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Individual farrowing pen with straw (AHDB Pork)

## Weaners in straw based pens and yards

If the straw is provided in good quantities, this is generally accepted as adequate enrichment for weaners housed in yards or pens with clean straw provided as bedding material.

Suggested materials for how to provide “additional” enrichment for weaners in straw based pens and yards can include:

### More straw

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Add a bale to the group or present as bedding.</li> <li>• Provide as much as space allows.</li> <li>• Once broken down, replenish with another bale.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be provided on its own.</li> <li>• Must be kept clean and dry.</li> <li>• In high temperatures, lots of straw as bedding might increase the risk of heat stress, so may need to also provide areas without straw where the pigs can cool down.</li> <li>• Significant cost and time associated with use.</li> </ul>

### Vegetation (eg grass cuttings, hay, silage)

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Add to the pen or present as bedding.</li> <li>• Provide enough to avoid competition and squabbling.</li> <li>• May require replenishing up to twice a day.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be provided on its own.</li> <li>• Must be kept clean and dry.</li> <li>• Plays a role in physical comfort and thermal regulation but may increase the risk of heat stress in hot weather.</li> <li>• Significant cost and time associated with use.</li> </ul>

## Fresh wood (virgin – recently cut not dried)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Add to the pen as objects. Can be suspended (for example, by a chain) at pig head height or left at floor level.
- Wood can be put into a holding tube or attached to a wall using a hook.
- The size of the wooden pieces should be proportional to the size of the pigs.
- Provide enough pieces to avoid competition and squabbling.
- Replace weekly or more often – as required.

### Practical considerations

- Make sure there are no sharp edges and that the wood is not dried or splintering and will not cause harm to the pigs or the pen. Fresh cut softwood stimulates more interest, as it is more odorous. Hardwoods can be harder to chew.
- Pigs can manipulate wood better if it is suspended.
- Wood pieces should not be included in the muck heap as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.
- **Avoid yew, it is poisonous to livestock.**

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Can be wound around the bars of gates or pen fittings or suspended vertically. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1m (40in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
  - About 20cm (approx. 8 inches) of rope touches the floor.
- Provide enough rope pieces to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Comes in various thicknesses – the thicker the better.
- Be careful not to let sections of rope get included on muck heap as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.



## Strong hosepipe

Marginal (chewable and manipulable – not edible or investigable)



### How to present it

- Can be wound around the bars of the gates, suspended vertically or fixed to the pen walls.
- Provide enough hosepipe to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Be careful not to let sections get included on muck heap as they could damage the muck spreader equipment.
- Should be changed regularly to try to maintain pigs' interest.
- Should be complimented by optimal or suboptimal materials.

## Plastic dog/pig toys

Marginal (may be chewable and manipulable depending on design – not edible or investigable)



### How to present it

- Present either suspended on a rope or chain or given loose in the pen.
- Provide enough toys to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another toy or enrichment material. Can vary suspending toys and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest. Should be changed regularly to try to maintain pigs' interest.
- Minimal installation in terms of time. Can range in cost from cheap to expensive.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

## Paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Paper can be provided shredded or as sheets, either loose as a partial bedding or from a side mounted rack. Cardboard can be as sheets or boxes, usually provided loose in the pen.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Shredded paper can be obtained at a cost.
- Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by edible and investigable materials.

## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be provided either loose in the pen or in a tray/dispenser/rack, attached to the side of the pen or suspended.</li> <li>• Provide as available, with enough to avoid competition and squabbling.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Be careful not to provide too much and consider supplementary nutritional value to overall rations.</li> <li>• Depending on the season, some surplus vegetables can cost and need replacing regularly.</li> <li>• Significant cost and time associated with use.</li> <li>• <b>Avoid parsnips as they are toxic to pigs.</b></li> <li>• <b>Must not be kitchen waste.</b></li> </ul>

## Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – of limited edible and investigable quality)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be provided suspended on rope, tied to gates or attached to pen walls.</li> <li>• Provide as available, with enough to avoid competition and squabbling.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Cloth sacks made of natural materials and fibres are best.</li> <li>• Costs can be from 50p/sack.</li> <li>• Be careful not to let sections get included on muck heap, as they could damage the muck spreader equipment.</li> <li>• Should be complimented by edible and investigable materials.</li> </ul>

## Football/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Present either suspended on rope/chain or given loose in the pen.</li> <li>• Provide enough to avoid competition and squabbling.</li> <li>• Once pigs begin to show no interest, replace with another object or enrichment material. Can vary suspending balls or wellingtons and providing them loose.</li> <li>• Replace when required (ie if damaged or soiled).</li> </ul>	<ul style="list-style-type: none"> <li>• If provided loose in the pen, toys can become quickly soiled and reduce in interest.</li> <li>• Minimal installation in terms of time and cost.</li> <li>• Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.</li> <li>• Some commercial items available.</li> <li>• Should be complimented by optimal or suboptimal materials.</li> </ul>

Many producers introduce some of the items listed in this section to their straw housed pigs even when they appear comfortable and settled. Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Weaners with straw and suspended plastic object (AHDB Pork)

### How to be confident that the enrichment is appropriate

Signs of insufficient enrichment could include:

- More aggressive behaviour directed to their pen mates. This can include fighting or chewing and biting, eg ears, flank and tail
- Excessive drinking or chewing on nipple drinkers
- Biting or chewing at pen fittings
- Unsettled pigs
- Increased noise

All of the above could also indicate the early signs of a health breakdown.



## Growers and finishers in straw based pens and yards

If the straw is provided in good quantities, this is generally accepted as adequate enrichment for grower and finisher pigs housed in yards or pens with clean straw provided as bedding material.

Suggested materials for how to provide “additional” enrichment for growers and finishers in straw based pens and yards can include:

### More straw

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Add a bale to the group or present as bedding.</li> <li>• Provide as much as space allows.</li> <li>• Once broken down, replenish with another bale.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be provided on its own.</li> <li>• Must be kept clean and dry.</li> <li>• In high temperatures, lots of straw as bedding might increase the risk of heat stress, so may need to also provide areas without straw where the pigs can cool down.</li> <li>• Significant cost and time associated with use.</li> </ul>

### Vegetation (eg grass cuttings, hay, silage)

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Add to the pen or present as bedding.</li> <li>• Provide enough to avoid competition and squabbling.</li> <li>• May require replenishing up to twice a day.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be provided on its own.</li> <li>• Must be kept clean and dry.</li> <li>• Plays a role in physical comfort and thermal regulation but may increase the risk of heat stress in hot weather.</li> <li>• Significant cost and time associated with use.</li> </ul>

## Fresh wood (virgin – recently cut not dried)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Add to the group as objects. Can be suspended (for example, by a chain) at pig head height or left at floor level.
- Wood can be put into a holding tube or attached to a wall using a hook.
- The size of the wooden pieces should be proportional to the size of the pigs.
- Provide enough pieces to avoid competition and squabbling.
- Replace weekly or more often – as required.

### Practical considerations

- Make sure there are no sharp edges and that the wood is not dried or splintering and will not cause harm to the pigs or the pen.
- Fresh cut softwood stimulates more interest, as it is more odorous.
- Hardwoods can be harder to chew.
- Pigs can manipulate wood better if it is suspended.
- Wood pieces should not be included in the muck heap as they could damage the muck spreader equipment.
- **Avoid yew, it is poisonous to livestock.**
- Should be complimented by edible and investigable materials.

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Can be wound around the bars of gates or pen fittings or suspended vertically. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1m (40in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
  - About 20cm (approx. 8 inches) of rope touches the floor.
- Provide enough rope pieces to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Comes in various thicknesses – the thicker the better.
- Be careful not to let sections of rope get included on muck heap as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.

## Strong hosepipe

Marginal (chewable and manipulable – not edible or investigable)



### How to present it

- Can be wound around the bars of the gates, suspended vertically or fixed to the pen walls.
- Provide enough hosepipe to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Be careful not to let sections get included on muck heap as they could damage the muck spreader equipment.
- Should be changed regularly to try to maintain pigs' interest.
- Should be complimented by optimal or suboptimal materials.

## Plastic dog/pig toys

Marginal (may be chewable and manipulable depending on design – not edible or investigable)



### How to present it

- Present either suspended on a rope or chain or given loose in the pen.
- Provide enough toys to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another toy or enrichment material. Can vary suspending toys and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest. Should be changed regularly to try to maintain pigs' interest.
- Minimal installation in terms of time. Can range in cost from cheap to expensive.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

## Paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Paper can be provided shredded or as sheets, either loose as a partial bedding or from a side mounted rack. Cardboard can be as sheets or boxes, usually provided loose in the pen.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Shredded paper can be obtained at a cost.
- Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by edible and investigable materials.

## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be provided either loose in the pen or in a tray/dispenser/rack, attached to the side of the pen or suspended.</li> <li>• Provide as available, with enough to avoid competition and squabbling.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Be careful not to provide too much and consider supplementary nutritional value to overall rations.</li> <li>• Depending on the season, some surplus vegetables can cost and need replacing regularly.</li> <li>• Significant cost and time associated with use.</li> <li>• <b>Avoid parsnips as they are toxic to pigs.</b></li> <li>• <b>Must not be kitchen waste.</b></li> </ul>

## Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – of limited edible and investigable quality)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be provided suspended on a rope, tied to gates or attached to pen walls.</li> <li>• Provide as available, with enough to avoid competition and squabbling.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Cloth sacks made of natural materials and fibres are best.</li> <li>• Costs can be from 50p/sack.</li> <li>• Be careful not to let sections get included on muck heap as they could damage the muck spreader equipment.</li> <li>• Should be complimented by edible and investigable materials.</li> </ul>

## Football/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Present either suspended on a rope/chain or given loose in the pen.</li> <li>• Provide enough to avoid competition and squabbling.</li> <li>• Once pigs begin to show no interest, replace with another object or enrichment material. Can vary suspending balls or wellingtons and providing them loose.</li> <li>• Replace when required (ie if damaged or soiled).</li> </ul>	<ul style="list-style-type: none"> <li>• If provided loose in the pen, toys can become quickly soiled and reduce in interest.</li> <li>• Minimal installation in terms of time and cost.</li> <li>• Never introduce dirty wellington boots as this could easily transfer disease or be a health risk to the pigs.</li> <li>• Some commercial items available.</li> <li>• Should be complimented by optimal or suboptimal materials.</li> </ul>



Many producers introduce some of the items listed in this section to their straw housed pigs even when they appear comfortable and settled. Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Finishers on straw with a suspended plastic toy or plastic object at floor level (AHDB Pork)

### How to be confident that the enrichment is appropriate

Signs of insufficient enrichment could include:

- More aggressive behaviour directed to their pen mates. This can include fighting or chewing and biting, eg ears, flank and tail
- Excessive drinking or chewing on nipple drinkers
- Biting or chewing at pen fittings
- Unsettled pigs
- Increased noise

All of the above could also indicate the early signs of a health breakdown.



## **Indoor – in fully or partially slatted housing**

Introduction	36
Dry sows in fully or partially slatted housing	37
Weaners in fully or partially slatted housing	43
Growers and finishers in fully or partially slatted housing	49

## Indoor – in fully or partially slatted housing

In housing systems where materials for bedding cannot be provided as a source of enrichment, various other enrichment materials should be provided. Some of these will need to be used in combination with other enrichments, as presented alone, they do not fulfil the required properties to be considered optimal enrichment, nor do they meet the legal minimum requirements<sup>7,8,11</sup>.

### Things to consider when using non-bedding type enrichments:

- As a general rule, object-based enrichments are best suited for pigs kept in systems with slatted floors. However, with different presentations, substrate in small amounts can be effective without adversely affecting slurry systems
- Consider using two or more of these enrichments at any one time
- Introduce new materials and objects from time to time, change their presentation (ie suspend or placed on the floor) to prevent pigs losing interest in them
- Keep them clean and replace if items become damaged or destroyed (suspending items can help reduce them becoming fouled)
- Objects placed on the floor can encourage pigs to express natural rooting behaviour



Finishers on slats with enrichment objects (AHDB Pork)

## Dry sows in fully or partially slatted housing

For dry sows housed on slats or in partially slatted housing, providing enrichment can have a range of benefits, including reducing aggressive behaviour directed at their pen mates, biting and chewing pen fittings, excessive drinking or chewing on nipple drinkers and reduce stress in the animals<sup>2</sup>.

Suggested materials for how to provide enrichment for dry sows housed on slats or partially slatted housing can include:

### Paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Paper can be provided shredded or as sheets, either loose as a partial bedding or from a side mounted rack. Cardboard can be as sheets or as boxes, usually provided loose in the pen.</li> <li>• Provide as available, with enough to avoid competition and squabbling.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Care must be taken to ensure there are no staples, which could harm the pigs.</li> <li>• Shredded paper can be obtained at a cost, but may not be suitable for all slatted housing, as large amounts could interfere with some slurry systems.</li> <li>• Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.</li> <li>• Should be complimented by edible and investigable materials.</li> </ul>

### Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – of limited edible and investigable quality)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be provided suspended on a rope, tied to gates or attached to pen walls.</li> <li>• Provide as available, with enough to avoid competition and squabbling.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Cloth sacks made of natural materials and fibres are best.</li> <li>• Costs can be from 50p/sack.</li> <li>• Be careful not to let sections get included on muck heap as they could damage the muck spreader equipment.</li> <li>• Should be complimented by edible and investigable materials.</li> </ul>

## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



### How to present it

- Can be provided either loose in the pen or in a tray/dispenser/rack attached to the side of the pen. Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Be careful not to provide too much and consider supplementary nutritional value to overall rations.
- Root vegetables can take up space in the trough, which will encourage sows to root for their feed as well as exploring the root vegetables.
- Depending on the season, some surplus vegetables can cost, and need replacing regularly.
- Significant cost and time associated with use.
- **Avoid parsnips as they are toxic to pigs.**
- **Must not be kitchen waste.**

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Can be wound around the bars of gates or pen fittings or suspended vertically. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1m (40in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
  - About 20cm (approx. 8 inches) of rope touches the floor.
- Provide enough rope pieces to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Comes in various thicknesses.
- Thicker rope is better and less likely to pass through slats.
- Should be complimented by edible and investigable materials.

## Football/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



### How to present it

- Present either suspended on a rope/chain or given loose in the pen.
- Provide enough to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another object or enrichment material. Can vary suspending balls or wellingtons and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest.
- Minimal installation in terms of time and cost.
- Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

## Fresh wood (virgin – recently cut not dried)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Can be suspended (for example by a chain) at pig head height or left at floor level.
- Wood can be put into a holding tube or attached to a wall using a hook.
- The size of the wooden pieces should be proportional to the size of the pigs.
- Provide enough pieces to avoid competition and squabbling.
- Replace weekly or more often – as required.

### Practical considerations

- Make sure there are no sharp edges and that the wood is not dried or splintering, and will not cause harm to the pigs or the pen.
- Fresh cut softwood stimulates more interest, as it is more odorous.
- Hardwoods can be harder to chew.
- Pigs can manipulate wood better if it is suspended.
- Wood pieces should be thick enough to ensure they will not pass through the slats.
- **Avoid yew, which is poisonous to livestock.**
- Should be complimented by edible and investigable materials.

## Strong hosepipe

Marginal (chewable and manipulable – not edible or investigable)



### How to present it

- Can be wound around the bars of the gates, suspended vertically or fixed to the pen walls.
- Provide enough hosepipe to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Should be thick enough not to pass through slats.
- Should be changed regularly to try to maintain pigs' interest.
- Should be complimented by optimal or suboptimal materials.

## Plastic dog/pig toys

Marginal (may be chewable and manipulable depending on design – not edible or investigable)



### How to present it

- Present either suspended on a rope or chain or given loose in the pen.
- Provide enough toys to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another toy or enrichment material. Can vary suspending toys and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest. Should be changed regularly to try to maintain pigs' interest.
- Minimal installation in terms of time. Can range in cost from cheap to expensive.
- Should be big enough not to pass through slats.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.



## Straw or hay in racks or compressed (not as bedding)

Suboptimal (edible, chewable and manipulable – but may not be easily investigable)



### How to present it

- Can be presented in racks, dispensers or containers, positioned so that:
  - Access by the pigs is easy
  - That it can be easily refilled by staff.
- Provide enough to avoid competition and squabbling.
- Refill as required.

### Practical considerations

- Narrow gaps between bars of the rack helps to prevent too much enrichment being pulled out and falling onto the slats.
- Consider the supplementary nutritional value to overall rations.
- It may be necessary to place a tray on the floor under rack/dispenser to prevent fallen material affecting the slurry system.
- Regular re-filling of the racks/dispensers can take a lot of time for staff and materials can be costly.

Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Example of wood in a holding tube, mounted on a pen wall (AHDB Pork)

### How to be confident that the enrichment is appropriate

Signs of insufficient enrichment could include:

- More aggressive behaviour directed to their pen mates. This can include fighting or chewing and biting, eg ears, flank and tail
- Excessive drinking or chewing on nipple drinkers
- Biting or chewing at pen fittings
- Unsettled pigs
- Increased noise

All of the above could also indicate the early signs of a health breakdown.

## Weaners in fully or partially slatted housing

For weaners housed on slats or partial slats, providing enrichment can have a range of benefits, including reducing aggressive behaviour directed at their pen mates, biting and chewing pen fittings, excessive drinking or chewing on nipple drinkers and reduce stress in the animals<sup>2</sup>. If the weaners have come from enriched pre-weaning environments, it is very important that suitable and sufficient enrichment continues to be provided in their post-weaning environment to prevent frustration<sup>21,22</sup>.

Suggested materials for how to provide enrichment for weaners in fully or partially slatted housing can include:

### Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be suspended or wrapped around pen fittings. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.</li> <li>• Appears to hold the pigs' interest best when<sup>19</sup>:               <ul style="list-style-type: none"> <li>– A sisal rope about 1m (40in) long is used</li> <li>– The diameter of the rope is about 14mm (approx. 1/2 inch)</li> <li>– About 20cm (approx. 8 inches) of rope touches the floor.</li> </ul> </li> <li>• Provide enough rope pieces to avoid competition and squabbling.</li> <li>• Replace when required (ie if damaged or soiled).</li> </ul>	<ul style="list-style-type: none"> <li>• Thicker rope is better and less likely to pass through slats, and interfere with slurry system.</li> <li>• Relatively inexpensive.</li> <li>• Should be complimented by more edible and investigable materials.</li> </ul>

## Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – of limited edible and investigable quality)



### How to present it

- Can be provided suspended on a rope, tied to gates or attached to pen walls.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Cloth sacks made of natural materials and fibres are best.
- Costs can be from 50p/sack.
- Be aware that any long sections that break off may block slurry systems if they pass through slats.
- Should be complimented by edible and investigable materials.

## Fresh wood (virgin – recently cut not dried)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Can be suspended (for example by a chain) at pig head height or left at floor level.
- Wood can be put into a holding tube or attached to a wall using a hook.
- The size of the wooden pieces should be proportional to the size of the pigs.
- Provide enough pieces to avoid competition and squabbling.
- Replace weekly or more often – as required.

### Practical considerations

- Make sure there are no sharp edges and that the wood is not dried or splintering, and will not cause harm to the pigs or the pen.
- Fresh cut softwood stimulates more interest, as it is more odorous.
- Hardwoods can be harder to chew.
- Pigs can manipulate wood better if it is suspended.
- Wood pieces should be thick enough to ensure they will not pass through the slats.
- Should be complimented by edible and investigable materials.
- **Avoid yew, it is poisonous to livestock.**

## Strong hosepipe

Marginal (chewable and manipulable – not edible or investigable)



### How to present it

- Can be wound around the bars of the gates, suspended vertically or fixed to the pen walls.
- Provide enough hosepipe to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Should be thick enough not to pass through slats.
- Should be changed regularly to try to maintain pigs' interest.
- Should be complimented by optimal or suboptimal materials.

## Plastic dog/pig toys

Marginal (may be chewable and manipulable depending on design – not edible or investigable)



### How to present it

- Present either suspended on a rope or chain or given loose in the pen.
- Provide enough toys to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another toy or enrichment material. Can vary suspending toys and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest.
- Should be changed regularly to try to maintain pigs' interest.
- Minimal installation in terms of time. Can range in cost from cheap to expensive.
- Should be big enough not to pass through slats.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

## Football/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



### How to present it

- Present either suspended on a rope/chain or given loose in the pen.
- Provide enough to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another object or enrichment material. Can vary suspending balls or wellingtons and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled, and reduce in interest.
- Minimal installation in terms of time and cost.
- Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

## Shredded paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Can be provided loose in the pen, as a few handfuls daily or as cardboard sheets or boxes
- Replace as required.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Can be obtained at a cost.
- Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.
- Be aware that large amounts may block slurry systems.
- Should be complimented by more edible and investigable materials.

## Wood shavings

Suboptimal (investigable and manipulable – but offer limited chewable and edible qualities)



### How to present it

- Can be provided loose in the pen, as a few handfuls daily or from a rack or dispenser.
- Replace as frequently as required or daily.

### Practical considerations

- Be aware that large amounts may block slurry systems.
- Significant cost and time associated with use.
- Should be complimented by more edible and chewable materials.

## Straw or hay in racks or compressed (not as bedding)

Suboptimal (edible, chewable and manipulable – but may not be easily investigable)



### How to present it

- Can be presented in racks, dispensers or containers, positioned so that:
  - Access by the pigs is easy
  - That it can be easily refilled by staff
- Provide enough to avoid competition and squabbling.
- Refill as required.

### Practical considerations

- Narrow gaps between bars of the rack helps to prevent too much enrichment being pulled out and falling onto the slats.
- Consider the supplementary nutritional value to overall rations.
- It may be necessary to place a tray on the floor under rack/dispenser to prevent fallen material affecting the slurry system.
- Regular re-filling of the racks/dispensers can take a lot of time for staff and materials can be costly.

Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Weaners on slats with plastic piping suspended from chains are marginal enrichment and should be complimented by optimal or suboptimal materials (AHDB Pork)

### How to be confident that the enrichment is appropriate

Signs of insufficient enrichment could include:

- More aggressive behaviour directed to their pen mates. This can include fighting or chewing and biting, eg ears, flank and tail
- Excessive drinking or chewing on nipple drinkers
- Biting or chewing at pen fittings
- Unsettled pigs
- Increased noise

All of the above could also indicate the early signs of a health breakdown.





## Growers and finishers in fully or partially slatted housing

For growers and finishers housed on slats or in partial slats, providing enrichment can have a range of benefits, including reducing aggressive behaviour directed at their pen mates, biting and chewing pen fittings, excessive drinking or chewing on nipple drinkers and reduce stress in the animals<sup>2</sup>. If the pigs have come from previously enriched environments, it is very important that suitable and sufficient enrichment continues to be provided in their grower and finisher pens environment to prevent frustration<sup>20</sup>.

Suggested materials for how to provide enrichment for growers and finishers in fully or partially slatted housing can include:

### Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be suspended or wrapped around pen fittings. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.</li> <li>• Appears to hold the pigs' interest best when<sup>19</sup>:               <ul style="list-style-type: none"> <li>– A sisal rope about 1m (40in) long is used</li> <li>– The diameter of the rope is about 14mm (approx. 1/2 inch)</li> <li>– About 20cm (approx. 8 inches) of rope touches the floor.</li> </ul> </li> <li>• Provide enough rope pieces to avoid competition and squabbling.</li> <li>• Replace when required (ie if damaged or soiled).</li> </ul>	<ul style="list-style-type: none"> <li>• Thicker rope is better and less likely to pass through slats, and interfere with slurry system.</li> <li>• Relatively inexpensive.</li> <li>• Should be complimented by more edible and investigable materials.</li> </ul>

## Wood shavings

Suboptimal (investigable and manipulable – but offer limited chewable and edible qualities)



### How to present it

- Can be provided loose in the pen, as a few handfuls daily or from a rack or dispenser.
- Replace as frequently as required or daily.

### Practical considerations

- Be aware that large amounts may block slurry systems.
- Significant cost and time associated with use.
- Should be complimented by more edible and chewable materials.

## Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – of limited edible and investigable quality)



### How to present it

- Can be provided suspended on a rope, tied to gates or attached to pen walls.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Cloth sacks made of natural materials and fibres are best.
- Costs can be from 50p/sack.
- Be aware that any long sections that break off may block slurry systems if they pass through slats.
- Should be complimented by edible and investigable materials.

## Fresh wood (virgin – recently cut not dried)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Add to the group as objects. Can be suspended (for example by a chain) at pig head height or left at floor level.
- Wood can be put into a holding tube or attached to a wall using a hook.
- The size of the wooden pieces should be proportional to the size of the pigs.
- Provide enough pieces to avoid competition and squabbling.
- Replace weekly or more often – as required.

### Practical considerations

- Make sure there are no sharp edges and that the wood is not dried or splintering, and will not cause harm to the pigs or the pen.
- Fresh cut softwood stimulates more interest as it is more odorous.
- Hardwoods can be harder to chew.
- Pigs can manipulate wood better if it is suspended.
- Wood pieces should be thick enough to ensure they will not pass through the slats.
- Should be complimented by edible and investigable materials.
- **Avoid yew, it is poisonous to livestock.**

## Strong hosepipe

Marginal (chewable and manipulable – not edible or investigable)



### How to present it

- Can be wound around the bars of the gates, suspended vertically or fixed to the pen walls.
- Provide enough hosepipe to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Should be thick enough not to pass through slats.
- Should be changed regularly to try to maintain pigs' interest.
- Should be complemented by optimal or suboptimal materials.

## Plastic dog/pig toys

Marginal (may be chewable and manipulable depending on design – not edible or investigable)



### How to present it

- Present either suspended on a rope or chain or given loose in the pen.
- Provide enough toys to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another toy or enrichment material. Can vary suspending toys and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest.
- Should be changed regularly to try to maintain pigs' interest.
- Minimal installation in terms of time. Can range in cost from cheap to expensive.
- Should be big enough not to pass through slats.
- Some commercial items available.
- Should be complemented by optimal or suboptimal materials.

## Football/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



### How to present it

- Present either suspended on a rope/chain or given loose in the pen.
- Provide enough to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another object or enrichment material. Can vary suspending balls or wellingtons and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled, and reduce in interest.
- Minimal installation in terms of time and cost.
- Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.
- Some commercial items available.
- Should be complemented by optimal or suboptimal materials.

## Shredded paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Can be provided loose in the pen, as a few handfuls daily or as cardboard sheets or boxes
- Replace as frequently as required or daily.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Can be obtained at a cost.
- Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.
- Be aware that large amounts may block slurry systems.
- Should be complimented by more edible and investigable materials.

## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



### How to present it

- Can be provided either loose in the pen or in a tray/dispenser/rack, attached to the side of the pen or suspended.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Be careful not to provide too much, and consider supplementary nutritional value to overall rations.
- Depending on the season, some surplus vegetables can cost and need replacing regularly.
- Significant cost and time associated with use.
- **Avoid parsnips, as they are toxic to pigs.**
- **Must not be kitchen waste.**

## Straw or hay in racks or compressed (not as bedding)

Suboptimal (edible, chewable and manipulable – but may not be easily investigable)



### How to present it

- Can be presented in racks, dispensers or containers, positioned so that:
  - Access by the pigs is easy
  - That it can be easily refilled by staff
- Provide enough to avoid competition and squabbling.
- Refill as required.

### Practical considerations

- Narrow gaps between bars of the rack helps to prevent too much enrichment being pulled out and falling onto the slats. It may be necessary to place a tray on the floor under rack/dispenser to prevent fallen material affecting the slurry system.
- Consider the supplementary nutritional value to overall rations.
- Regular re-filling of the racks/dispensers can take a lot of time for staff and materials can be costly.

Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Growers with a commercially available plastic toy - Bite Rite™ (AHDB Pork)

### How to be confident that the enrichment is appropriate

Signs of insufficient enrichment could include:

- More aggressive behaviour directed to their pen mates. This can include fighting or chewing and biting, eg ears, flank and tail
- Excessive drinking or chewing on nipple drinkers
- Biting or chewing at pen fittings
- Unsettled pigs
- Increased noise

All of the above could also indicate the early signs of a health breakdown.

**Farrowing crates**

Introduction	56
For sows	57
For piglets	61

## Farrowing crates

This can be a particularly difficult time to provide sows and piglets with appropriate enrichment, but when done well, there are many benefits.

### Benefits of enrichment pre-farrowing:

- Enables the expression of nest-building behaviour before farrowing, both gathering the materials and manipulating them
- This may result in a more settled sow during farrowing with fewer postural changes and therefore less chance of piglet crushing
- It has also been shown to improve milk let-down



Shredded paper and straw being used for sows in farrowing crates (AHDB Pork)



## For sows

Suggested materials for how to provide enrichment for sows in farrowing crates can include:

### Straw

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Provide at the head end of the crate.</li> <li>• Add new straw twice a day.</li> </ul>	<ul style="list-style-type: none"> <li>• Small quantities of chopped straw is more compatible with slurry system but may not be suitable for all systems.</li> <li>• Significant cost and time associated with use.</li> </ul>

### Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – of limited edible and investigable quality)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Provide suspended at head of crate, ensuring it cannot hang down into the feeder or drinker.</li> <li>• One or half a sack as thick a material as possible.</li> <li>• Provide as available and replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Must be within easy reach of the sow to avoid frustration.</li> <li>• Be aware that any long sections that breaks off may block slurry systems if they pass through slats.</li> <li>• Cloth sacks made of natural materials and fibres are best.</li> <li>• Costs can be from 50p/sack.</li> <li>• Should be complimented by edible and investigable materials.</li> </ul>

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- Can be wound around the bars at the end of the crate or suspended vertically. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1 m (40 in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
- Replace when required (i.e. if damaged or soiled).

### Practical considerations

- Must be within easy reach of the sow, but not piglets (to avoid accidental crushing against bars).
- Thicker rope is better and less likely to pass through slats.
- Should be complimented by edible and investigable materials.

## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



### How to present it

- In the feed trough.
- Surplus root vegetables are good. A couple could be put in the trough daily.
- Replace daily or as required.

### Practical considerations

- Root vegetables can take up space in the trough which will encourage sows to root for their feed as well as exploring the root vegetables.
- Be careful not to provide too much and consider supplementary nutritional value to overall rations.
- Depends on season and availability.
- Significant cost and time associated with use.
- **Avoid parsnips, as they are toxic to pigs.**
- **Must not be kitchen waste.**

## Strong hosepipe

Marginal (chewable and manipulable – not edible or investigable)



### How to present it

- Can be wound around the bars at the head-end of the crate.
- 1 metre length.
- Replace as required

### Practical considerations

- Must be within easy reach of the sow.
- Should be thick enough not to pass through slats.
- Should be complimented by optimal or suboptimal materials.

## Paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Paper can be provided shredded as a partial bedding.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Shredded paper can be obtained at a cost.
- Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by edible and investigable materials.

## Plastic dog/pig toys

Marginal (may be chewable and manipulable depending on design – not edible or investigable).



### How to present it

- In the feed trough or suspended on short rope or chain at the head of the crate.
- 1-2 toys provided.
- Once sow begins to lose interest, replace with another toy or enrichment material.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If suspended, ensure the rope/chain is not long enough to endanger the sow or piglets.
- Minimal installation in terms of time.
- Can range in cost from cheap to expensive.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

## Fresh wood (virgin – recently cut not dried)

Suboptimal (chewable and manipulable – may be edible and investigable but not always)



### How to present it

- In the feed trough or suspended on a short rope or chain at the head of the crate.
- 1-2 pieces, depending on size
- Replace every week so that it remains interesting.

### Practical considerations

- Make sure there are no sharp edges and that the wood is not dried or splintering, and will not cause harm to the pigs or the pen. Fresh cut softwood stimulates more interest, as it is more odorous. Hardwoods can be harder to chew. Pigs can manipulate wood better if it is suspended.
- Should be thick enough not to pass through slats.
- Should be complimented by edible and investigable materials.
- **Avoid yew, it is poisonous to livestock.**

Stimulating interest and providing an activity for pigs is a useful way to boost their wellbeing. Varying the objects on a weekly basis also provides novelty.



Shredded paper being provided ineffectively for sows in farrowing crates – should be at the head of the crate (AHDB Pork)

### How to be confident that the enrichment is appropriate

Pigs that do not have sufficient or appropriate enrichment can show vice behaviour.

Signs in sows can include:

- Excessive drinking or chewing on nipple drinkers
- Biting the air (sham chewing)
- Biting the crate bars or feed trough
- Sows standing more than usual or changing position frequently or pawing at the ground

All of these signs can also be early indicators for a health breakdown so monitor stock closely.

## For piglets

Stockmen will recognise that piglets begin rooting and exploring from the very first few hours of life. Initially, this is to locate the teat, even once this is established, piglets continue to root, explore and manipulate objects.

### What are the benefits of enrichment for piglets?

- Piglets show better behavioural and social development, reducing aggression that could be directed towards their littermates or the sow
- It may also improve piglets' ability to cope with new situations such as weaning and being moved to new housing.
- If piglets are able to direct their exploratory behaviour towards enrichment materials, rather than their pen mates from an early age, they are less likely to revert to undesirable behaviour later
- Additionally, providing pre-weaning enrichment has been linked to improved finishing performance and carcase/meat characteristics<sup>21</sup>

Suggested materials for how to provide enrichment for piglets in farrowing crates can include:

## Straw

Optimal (edible, chewable, investigable and manipulable)



How to present it	Practical considerations
<ul style="list-style-type: none"> <li>• Can be provided loose, as a few handfuls daily or from a rack or dispenser, from day 2-3 onwards.</li> <li>• Replace as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Small quantities of chopped straw is more compatible with slurry system but may not be suitable for all systems.</li> <li>• Significant cost and time associated with use.</li> </ul>

## Hessian cloth sacks (or jute/burlap, etc.)

Suboptimal (chewable and manipulable – not edible and of limited investigable quality)



### How to present it

- Can be suspended, attached to the side of the pen in the creep area or loose. Provide half a sack at a time, from day 2-3 onwards.
- Alternatively, sacks used by the sow, but clean, can be given to her piglets, suspended or loose in the creep area.
- Provide as available and replace as required.

### Practical considerations

- Be aware that any long sections that break off may block slurry systems if they pass through slats.
- Cloth sacks made of natural materials and fibres are best.
- Costs can be from 50p/sack.
- Should be complimented by edible and investigable materials.

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable, but not always)



### How to present it

- Can be suspended or wrapped around pen fittings away from the crate. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Provide enough rope pieces to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Thicker rope is better and less likely to pass through slats.
- Should be complimented by edible and investigable materials.

## Paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Paper can be provided shredded loose, as a few handfuls daily or from a rack or dispenser, from day 2-3 onwards.
- Replace as required.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the piglets.
- Shredded paper can be obtained at a cost.
- Recycled paper and cardboard is much less suitable, as it may contain toxins from print ink, etc.
- Be aware that large amounts may block slurry systems.
- Should be complimented by more edible and investigable materials.

## Wood shavings

Suboptimal (investigable and manipulable – but offer limited edible and chewable qualities)



### How to present it

- Can be provided loose, as a few handfuls daily or from a rack or dispenser, from day 2-3 onwards.
- Replace as frequently or daily.

### Practical considerations

- Be aware that large amounts may block slurry systems.
- Significant cost and time associated with use.
- Should be complimented by more edible and chewable materials.

## Plastic dog/pig toys

Marginal (may be chewable and manipulable depending on design – not edible or investigable).



### How to present it

- Present either suspended on a rope or chain or given loose in the pen from day 2-3 onwards.
- Provide enough toys to avoid competition and squabbling.
- Once piglets begin to show no interest, replace with another toy or enrichment material. Can vary suspending toys and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled and reduce in interest.
- Should be changed regularly to try to maintain pigs' interest.
- Minimal installation in terms of time. Can range in cost from cheap to expensive.
- Should be big enough not to pass through slats.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.



Example of straw being used for piglets in farrowing crates (AHDB Pork)

#### Further tips for providing enrichment for piglets in farrowing crates:

- Varying the enrichment each week is a good way to stimulate interest and maximise the effectiveness of enrichments provided
- Try to ensure the enrichment materials don't get too close to the crate to avoid overlays or crushing injuries
- Remember chains alone are not sufficient
- Any enrichment material left behind after weaning must be washed and disinfected (eg hosepipe) or replaced (eg rope, sacks)

#### How to be confident that the enrichment is appropriate

Pigs that do not have sufficient or appropriate enrichment can show vice behaviour.

Signs in piglets can include:

- More aggressive behaviour to their littermates, usually chewing and biting
- This can also be directed at the sow or pen fittings
- Unsettled piglets
- Increased noise

All of these signs can also be early indicators for a health breakdown so monitor your stock closely.



## **Outdoor housing systems**

Introduction	66
Outdoor housed dry sows	67
Outdoor farrowing huts or pens	71
Outdoor housed weaners	75
Outdoor housed growers and finishers	79

## Outdoor housing systems

For pigs housed outdoors, the soil and general environment is generally accepted as adequate enrichment. Some studies claim that the greater environmental complexity of outdoor housing can help alleviate abnormal behaviours, such as manipulating pen mates (belly-nosing, tail biting, chewing, ear and flank biting), pen fixtures, and aggression<sup>22,23</sup>, while increasing levels of foraging, locomotion and feeding<sup>23</sup>. However, it can still be of benefit to the welfare of the pigs to provide additional items of enrichment, including substrates, objects and food-based enrichments.

### Things to consider when providing enrichment for outdoor pigs:

- Enrichment as bedding can provide comfort and warmth and supplement the pigs' diet, as well as provide environmental enrichment
- Additional enrichment materials provided will need to be able to withstand the variable outdoor weather conditions and be presented and maintained accordingly
- Keep clean and replace if materials or items become damaged or destroyed
- Consider using two or more of these enrichments at any one time
- Introduce new materials and objects from time to time, change their presentation to prevent pigs losing interest in them
- Shade and wallow areas should also be provided, to protect pigs in sunny, warm weather



Outdoor pig production (AHDB Pork)

## Outdoor housed dry sows

The majority of outdoor dry sows in the UK are kept in groups in outdoor paddocks, with huts or arks bedded with straw to provide shelter from the weather. If the straw is provided in good quantities, this is generally accepted as adequate enrichment.

Suggested additional materials for how to provide “additional” enrichment for dry sows housed outdoors can include:

### Straw

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add to the shelters as bedding.
- Provide as much as space allows.
- Replenish as regularly as required to keep clean and fresh.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- Plays a role in physical comfort and thermal regulation, but may increase the risk of heat stress in hot weather.
- Significant cost and time associated with use.

### Vegetation (eg grass cuttings, hay, silage)

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add to the shelters and paddocks loose (or as bales of hay in outdoor dispensers/ racks or present as bedding).
- Provide enough to avoid competition and squabbling.
- May require replenishing up to twice a day.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- Plays a role in physical comfort and thermal regulation, but may increase the risk of heat stress in hot weather.
- Significant cost and time associated with use.

## Footballs/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



### How to present it

- Present loose in the shelters or paddocks.
- Provide enough to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another object or enrichment material. Can vary suspending balls or wellingtons and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose, items can become quickly soiled and reduce in interest.
- Minimal installation in terms of time and cost.
- Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.
- Should be complimented by optimal or suboptimal materials.

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable, but not always)



### How to present it

- Can be wound around the bars of gates or suspended from gates, fence posts, etc.
- Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1m (40in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
  - About 20cm (approx. 8 inches) of rope touches the floor.
- Provide enough rope pieces to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Comes in various thicknesses – the thicker the better.
- Be careful not to let sections of rope get included on muck heap as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.

## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



### How to present it

- Can be provided either loose or in a suitable outdoor dispenser/rack.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Be careful not to provide too much and consider supplementary nutritional value to overall rations.
- Depending on the season, some surplus vegetables can cost and need replacing regularly.
- Significant cost and time associated with use.
- **Avoid parsnips, as they are toxic to pigs.**
- **Must not be kitchen waste.**

## Shredded paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Add to the shelters as bedding.
- Replace as regularly as required to keep clean and fresh or daily.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Can be obtained at a cost.
- Recycled paper is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by more edible and investigable materials.

## Sand

Suboptimal (investigable and manipulable)



### How to present it

- Present loose in paddocks.
- Can be left in piles for pigs to root in and spread around.
- Replace as regularly as required.

### Practical considerations

- Make sure there are no sharp items in the sand (ie glass or wire, particularly if using builders sand), which could cause harm to the pigs.
- Should be complimented by more edible and chewable materials.

## Bark/mulch

Suboptimal (chewable, investigable and manipulable)



### How to present it

- Present loose in paddocks.
- Can be left in piles for pigs to root in and spread around.
- Replace as regularly as required.

### Practical considerations

- Make sure there are no sharp items in the bark or mulch (ie glass or wire), which could cause harm to the pigs.
- Treated bark should not be used, as it may contain toxins from chemicals, etc.
- Should be complemented by more edible materials.
- **Avoid bark or mulch that is very wet and mouldy.**

Producers can introduce some of the items listed in this section to their stock housed outdoors even when they appear comfortable and settled. Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Outdoor dry sows, with straw for bedding in huts (AHDB Pork)

## Outdoor farrowing huts or pens

Outdoor farrowing systems usually use individual arks or huts. These are deep-bedded with straw and placed within individual farrowing paddocks. However, straw-bedded farrowing pens in tents are also used. Provided the straw is of good quality and quantity, it should provide adequate enrichment for both sows and piglets. As with dry sows, additional materials and objects can be added as required to stimulate interest in the sow and piglets.

Suggested additional materials for how to provide “additional” enrichment for farrowing huts or pens can include:

### Straw

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add to the farrowing huts or pens as bedding, prior to farrowing.
- Provide as much as space allows, for a deep bed, but ensure piglets do not get lost in the straw. To prevent this, chopped straw can be provided for the first few days following farrowing.
- Replenish as regularly as required to keep clean and fresh.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- Plays a role in physical comfort and thermal regulation for sows and piglets, but may increase the risk of heat stress in hot weather.
- Significant cost and time associated with use.

### Vegetation (eg grass cuttings, hay, silage)

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add to the farrowing huts or pens or present as extra bedding, or in smaller quantities as forage, once piglets are 2-3 days.
- May require replenishing up to twice a day.

#### Practical considerations

- Can be provided on its own, if provided as bedding.
- Must be kept clean and dry.
- Can play a role in physical comfort and thermal regulation, but may increase the risk of heat stress in hot weather.
- Significant cost and time associated with use.

## Wood shavings

Suboptimal (investigable and manipulable – but offer limited edible and chewable qualities)



### How to present it

- Can be provided loose in pens, as a few shovelfuls daily or as bedding from day 2-3 onwards.
- Replace as frequently as required or daily.

### Practical considerations

- Can be difficult to maintain clean and dry in wet and windy weather.
- Significant cost and time associated with use.
- Should be complimented by more edible and chewable materials.
- Should not be from treated wood.

## Footballs/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



### How to present it

- Present loose in the farrowing huts or pens.
- Provide enough to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another object or enrichment material. Can vary, suspending balls or wellingtons and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose, items can become quickly soiled and reduce in interest.
- Minimal installation in terms of time and cost.
- Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.
- Should be complimented by optimal or suboptimal materials.

## Shredded paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Add to the farrowing huts or pens as bedding or provide in smaller quantities as additional enrichment.
- Replace as regularly as required to keep clean and fresh or daily.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Can be obtained at a cost.
- Recycled paper is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by more edible and investigable materials.



Producers can introduce some of the items listed in this section to their stock housed outdoors, even when they appear comfortable and settled. Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Outdoor farrowing huts in a paddock (AHDB Pork)

### Benefits of enrichment pre-farrowing:

- Enables the expression of nest-building behaviour before farrowing, both gathering the materials and manipulating them
- This may result in a more settled sow during farrowing, with fewer postural changes and therefore less chance of piglet crushing
- It has also been shown to improve milk let-down

### What are the benefits of enrichment for piglets?

- Piglets show better behavioural and social development, reducing aggression that could be directed towards their littermates or the sow
- It may also improve the piglets' ability to cope with new situations such as weaning and being moved to new housing
- If piglets are able to direct their exploratory behaviour towards enrichment materials, rather than their pen mates, from an early age, they are less likely to revert to undesirable behaviour later
- Additionally, providing pre-weaning enrichment has been linked to improved finishing performance and carcase/meat characteristics<sup>21</sup>



## Outdoor housed weaners

For weaners housed outdoors, most are reared in deep-bedded huts or kennels, with an outer court or yard which has a concrete base with further straw bedding on top. If the straw is provided in good quantities, this is generally accepted as adequate enrichment for weaners.

Suggested materials for how to provide “additional” enrichment for outdoor housed weaners can include:

### Straw

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add a bale to the group or present as bedding.
- Provide as much as space allows.
- Once broken down, replenish with another bale.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- In high temperatures, lots of straw as bedding might increase the risk of heat stress, so may need to also provide areas without straw where the pigs' can cool down.
- Significant cost and time associated with use.

### Vegetation (eg grass cuttings, hay, silage)

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add to the pen or present as bedding.
- Provide enough to avoid competition and squabbling.
- May require replenishing up to twice a day.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- Plays a role in physical comfort and thermal regulation, but may increase the risk of heat stress in hot weather.
- Significant cost and time associated with use.

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable, but not always)



### How to present it

- Can be wound around the bars of gates or pen fittings or suspended vertically. Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1m (40in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
  - About 20cm (approx. 8 inches) of rope touches the floor.
- Provide enough rope pieces to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Comes in various thicknesses – the thicker the better.
- Be careful not to let sections of rope get included on muck heap as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.

## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



### How to present it

- Can be provided either loose in the pen or in a tray/dispenser/rack, attached to the side of the pen or suspended.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Be careful not to provide too much and consider supplementary nutritional value to overall rations.
- Depending on the season, some surplus vegetables can cost and need replacing regularly.
- Significant cost and time associated with use.
- **Avoid parsnips, as they are toxic to pigs.**
- **Must not be kitchen waste.**

## Football/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



### How to present it

- Present either suspended on a rope/chain or given loose in the pen.
- Provide enough to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another object or enrichment material. Can vary suspending balls or wellingtons and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose in the pen, toys can become quickly soiled, and reduce in interest.
- Minimal installation in terms of time and cost.
- Never introduce dirty wellington boots, as this could easily transfer disease or be a health risk to the pigs.
- Some commercial items available.
- Should be complimented by optimal or suboptimal materials.

## Bark/mulch

Suboptimal (chewable, investigable and manipulable)



### How to present it

- Present loose in paddocks.
- Can be left in piles for pigs to root in and spread around.
- Replace as regularly as required.

### Practical considerations

- Make sure there are no sharp items in the bark or mulch (ie glass or wire), which could cause harm to the pigs.
- Treated bark should not be used as it may contain toxins from chemicals, etc.
- **Avoid bark or mulch that is very wet and mouldy.**
- Should be complimented by more edible materials.

## Shredded paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Add to the huts or pens as bedding or provide in smaller quantities as additional enrichment.
- Replace as regularly as required to keep clean and fresh or daily.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Can be obtained at a cost.
- Recycled paper is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by more edible and investigable materials.

Producers can introduce some of the items listed in this section to their stock housed outdoors, even when they appear comfortable and settled. Stimulating interest and providing an activity for pigs is a useful way to enable them to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Outdoor weaners with straw (AHDB Pork)

## Outdoor housed growers and finishers

Outdoor growers and finishers in the UK are usually kept in groups in outdoor paddocks, with huts or arks bedded with straw to provide shelter from the weather. If the straw is provided in good quantities, this is generally accepted as adequate enrichment.

Suggested additional materials for how to provide “additional” enrichment for growers and finishers housed outdoors can include:

### Straw

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add to the shelters as bedding.
- Provide as much as space allows.
- Replenish as regularly as required to keep clean and fresh.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- Plays a role in physical comfort and thermal regulation, but may increase the risk of heat stress in hot weather.
- Significant cost and time associated with use.

### Vegetation (eg grass cuttings, hay, silage)

Optimal (edible, chewable, investigable and manipulable)



#### How to present it

- Add to the shelters and paddocks loose (or as bales of hay) in outdoor dispensers/racks or present as bedding.
- Provide enough to avoid competition and squabbling.
- May require replenishing up to twice a day.

#### Practical considerations

- Can be provided on its own.
- Must be kept clean and dry.
- Plays a role in physical comfort and thermal regulation, but may increase the risk of heat stress in hot weather.
- Significant cost and time associated with use.

## Football/s/wellington boots/plastic items

Marginal (may be chewable and manipulable – not edible or investigable)



### How to present it

- Present loose in the shelters or paddocks.
- Provide enough to avoid competition and squabbling.
- Once pigs begin to show no interest, replace with another object or enrichment material. Can vary, suspending balls or wellingtons and providing them loose.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- If provided loose, items can become quickly soiled and reduce in interest.
- Minimal installation in terms of time and cost.
- Never introduce dirty wellington boots as this could easily transfer disease or be a health risk to the pigs.
- Should be complimented by optimal or suboptimal materials.

## Natural rope (eg sisal or hemp)

Suboptimal (chewable and manipulable – may be edible and investigable, but not always)



### How to present it

- Can be wound around the bars of gates or may be suspended from gates, fence posts etc.
- Knots can be added to the rope to increase complexity and make it more difficult to break pieces off.
- Appears to hold the pigs' interest best when<sup>19</sup>:
  - A sisal rope about 1m (40in) long is used
  - The diameter of the rope is about 14mm (approx. 1/2 inch)
  - About 20cm (approx. 8 inches) of rope touches the floor.
- Provide enough rope pieces to avoid competition and squabbling.
- Replace when required (ie if damaged or soiled).

### Practical considerations

- Comes in various thicknesses – the thicker the better.
- Be careful not to let sections of rope get included on muck heap as they could damage the muck spreader equipment.
- Should be complimented by edible and investigable materials.



## Root Vegetables (eg turnips, fodder, beet, swede)

Optimal (edible, chewable, investigable and manipulable)



### How to present it

- Can be provided either loose or in a suitable outdoor dispenser/rack.
- Provide as available, with enough to avoid competition and squabbling.
- Replace as required.

### Practical considerations

- Be careful not to provide too much, and consider supplementary nutritional value to overall rations.
- Depending on the season, some surplus vegetables can cost and need replacing regularly.
- Significant cost and time associated with use.
- **Avoid parsnips, as they are toxic to pigs.**
- **Must not be kitchen waste.**

## Shredded paper or cardboard

Suboptimal (chewable and manipulable – may be edible and investigable, if not recycled)



### How to present it

- Add to the shelters as bedding.
- Replace as regularly as required to keep clean and fresh or daily.

### Practical considerations

- Care must be taken to ensure there are no staples, which could harm the pigs.
- Can be obtained at a cost.
- Recycled paper is much less suitable, as it may contain toxins from print ink, etc.
- Should be complimented by more edible and investigable materials.

## Sand

Suboptimal (investigable and manipulable)



### How to present it

- Present loose in paddocks.
- Can be left in piles for pigs to root in and spread around.
- Replace as regularly as required.

### Practical considerations

- Make sure there are no sharp items in the sand (ie glass or wire, particularly if using builders sand), which could cause harm to the pigs.
- Should be complimented by more edible and chewable materials.

## Bark/mulch

Suboptimal (chewable, investigable and manipulable)



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### How to present it

- Present loose in paddocks.
- Can be left in piles for pigs to root in and spread around.
- Replace as regularly as required.

### Practical considerations

- Make sure there are no sharp items in the bark or mulch (ie glass or wire), and will not cause harm to the pigs.
  - Treated bark should not be used as it may contain toxins from chemicals etc.
  - **Avoid bark or mulch that is very wet and mouldy.**
  - Should be complimented by more edible materials.
-

Producers can introduce some of the items listed in this section to their stock housed outdoors even when they appear comfortable and settled. Stimulating interest and providing an activity for pigs is a useful way to enable pigs to express natural behaviour. Varying the objects on a weekly basis also provides novelty.



Finishers foraging outside (EuWelNet)

### How to be confident that the enrichment is appropriate

Pigs that do not have sufficient or appropriate enrichment can show vice behaviour.

Signs of insufficient enrichment could include:

- More aggressive behaviour directed to their pen mates. This can include fighting or chewing and biting e.g. ears, flank and tail biting
- Excessive drinking or chewing on nipple drinkers
- Biting or chewing at pen fittings
- Unsettled pigs
- Increased noise

All of these signs can also be early indicators for a health breakdown.

## How to assess enrichment materials

Once enrichment materials are in place, it is important that checks are made to ensure that what is provided is sufficient and used by the animals. It is recommended that methods for assessing enrichment materials should include checks that are based on both animal and non-animal indicators, such as those given in the table below:

**Table 2 – Welfare indicators of enrichment materials<sup>11</sup>**

Non-animal based indicators	Animal based indicators
<ul style="list-style-type: none"> <li>— <b>Sustain interest:</b> is the material sufficiently frequently renewed?</li> <li>— <b>Access:</b> is the material easily accessible to the pigs?</li> <li>— <b>Sufficient quantity:</b> Are all pigs able to have enough materials to use at the same time?</li> <li>— <b>Clean:</b> is the material soiled with excreta?</li> </ul>	<ul style="list-style-type: none"> <li>— <b>Abnormal behaviours such as:</b> <ul style="list-style-type: none"> <li>• Pigs do not often use the materials provided over time</li> <li>• Pigs bite other elements than the materials provided (bars, tails/ears of other pigs, etc.)</li> <li>• Pigs root and manipulate their dung</li> <li>• Pigs compete or fight for the use of materials</li> <li>• Sows perform increased false nest building behaviour</li> </ul> </li> <li>— <b>Presence of bitten tails</b></li> <li>— <b>Presence of severe skin lesions</b></li> </ul>

The following assessment method for enrichment materials is that used by the Real Welfare Scheme in order to assess on-farm pig welfare, as required for those finishing pigs under the Red Tractor Farm Assurance Pigs Standard. One of the welfare outcome measures assessed by the Real Welfare protocol is environmental enrichment use (as well as lameness, hospital pigs, tail damage, and body marks). This is adapted from the Coordinated European Animal Welfare Network (EUWelNet), a version of which is also published in the Commission Staff Working Document on best practices with a view to the prevention of routine tail-docking and the provision of enrichment materials to pigs<sup>11</sup>.

## Real Welfare environmental enrichment use assessment

1. Number of standing or sitting pigs investigating a manipulable material, ie substrate or toy provided as enrichment.
2. Number of standing or sitting pigs manipulating other pigs, pen fittings, pen floor or muck. Include if the snout/ mouth is in contact with any part of another pig.
3. Recorded as the number of sitting or standing (active) pigs not using in “enrichment” or “other” categories. I.e. pigs feeding, drinking, defecating, standing or sitting with mouth/snout not in contact with anything.

The enrichment use is expressed as a ratio and is calculated as:

### **the number of pigs engaged in manipulating the environmental enrichment (1)**

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**total number of pigs manipulating either enrichment  
or pen mates or pen fittings (1+2).**

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Under this assessment, the higher the ratio the better. Any value over 0.5 suggests that pigs are displaying a preference to use the enrichments provided; 0.5 indicates that the provided enrichments are equal in preference to pen mates or pen fittings, so there is scope for improvement in providing enrichments; under 0.5 suggests that the enrichments are relatively ineffective, with pigs preferring to investigate other pen mates or fittings, and so consideration may need to be given to making management changes by introducing more optimal and sub-optimal enrichment materials. Additionally, the welfare indicators given in Table 2 should be checked in order to ensure pigs benefit from proper enrichment provision.

## New or Replacement Housing

When any new or replacement housing is being planned, this should be designed with consideration of enrichment provision, to comply with legislation. For example, 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”. New handling systems for manure should also ensure the provision of destructible materials.

## Afterword

As this guide shows, there are several options available to farmers to enrich the environment of their pigs. Some options are more expensive or more easily sourced than others. However, environmental enrichment can be done at a relatively low cost by re-using a range of materials or objects already available on the farm. Even so, it is important that these hold the pigs' interest, and this means changing the enrichment items on a regular basis. The practice of providing environmental enrichment is required to comply with legislation. However, it can also have beneficial effects on animal productivity, so farmers may see advantages to adopting this above animal welfare reasons.

Environmental enrichment is just one aspect of a pig's environment and it is important that its adequate provision for pigs is not seen in isolation to other factors such as ventilation, health, nutrition, water provision and competition for resources, are well managed too<sup>9</sup>.

## Acknowledgements

ADHB Pork gratefully acknowledge the kind permission to use selected images for this guide from EUWelNet (Coordinated European Animal Welfare Network).



## References

1. Stolba, A. and Wood-Gush, D.G.M., 1989. The behaviour of pigs in a semi-natural environment. *Animal production*, 48(02), pp. 419-425.
2. Young, R.J. (2003). *Environmental enrichment for captive animals*. Blackwell Publishing, p. 228.
3. Beattie, V.E., O'Connell, N.E. and Moss, B.W. (2000). Influence of environmental enrichment on the behaviour, performance and meat quality of domestic pigs. *Livestock Production Science*, 65(1/2): pp. 71-79.
4. Pearce, G.P. and Paterson, A.M. (1993). The effect of space restriction and provision of toys during rearing on the behaviour, productivity and physiology of male pigs. *Applied Animal Behaviour Science*, 36(1): pp. 11-28.
5. Tonepohl, B., Appel, A.K., Welp, S., Voss, B., von Borstel, U.K. and Gauly, M. (2012). Effect of marginal environmental and social enrichment during rearing on pigs' reactions to novelty, conspecifics and handling. *Applied Animal Behaviour Science*, 140(3/4): pp. 137-145.
6. de Jong, I.C., Prelle, I.T., van de Burgwal, J.A., Lambooij, E., Korte, S.M., Blokhuis, H.J. and J.M. Koolhaas. 2000. Effects of environmental enrichment on behavioural responses to novelty, learning and memory, and the circadian rhythm in cortisol in growing pigs. *Physiology & Behaviour*, 68(4): pp. 571-578.
7. Animal Welfare Act 2006 <http://www.legislation.gov.uk/ukpga/2006/45/contents>
8. Welfare of Farm Animals (England) Regulations 2007 (as amended) <http://www.legislation.gov.uk/uksi/2007/2078/contents/made>
9. COUNCIL DIRECTIVE 2008/120/EC of 18 December 2008 laying down minimum standards for the protection of pigs.
10. COMMISSION RECOMMENDATION (EU) 2016/336 of 8 March 2016 on the application of Council Directive 2008/120/EC laying down minimum standards for the protection of pigs as regards measures to reduce the need for tail-docking.
11. COMMISSION STAFF WORKING DOCUMENT on best practices with a view to the prevention of routine tail-docking and the provision of enrichment materials to pigs Accompanying the document COMMISSION RECOMMENDATION on the application of Council Directive 2008/120/EC laying down minimum standards for the protection of pigs as regards measures to reduce the need for tail-docking.
12. Blackshaw, J.K., Thomas, F.J. and Lee, J.A. (1997). The effect of a fixed or free toy on the growth rate and aggressive behaviour of weaned pigs and the influence of hierarchy on initial investigation of the toys. *Applied Animal Behaviour Science*, 53: 203-212.
13. Scott, K., Taylor, L., Gill, B.P. and Edwards, S.A. (2009). Influence of different types of environmental enrichment on the behaviour of finishing pigs in two different housing systems: 3. Hanging toy versus rootable toy of the same material. *Applied Animal Behaviour Science*, 116: 186-190.
14. Scott, K. and Edwards, S. (2005). Environmental enrichment for pigs. *Pig Progress*, 21: 27-28.
15. Van de Weerd, H.A. and Day, J.E., (2009). A review of environmental enrichment for pigs housed in intensive housing systems. *Applied Animal Behaviour Science*, 116: pp.1-20.
16. Van de Weerd, H.A., Docking, C.M., Day, J.E., Avery, P.J. and Edwards, S.A., 2003. A systematic approach towards developing environmental enrichment for pigs. *Applied Animal Behaviour Science*, 84: pp.101-118.
17. Beattie, V.E., Walker, N. and Sneddon, I.A., 1998. Preference testing of substrates by growing pigs. *Animal Welfare*, 7: pp.27-34.
18. Bracke, M.B.M., Zonderland, J.J., Lenskens, P., Schouten, W.G.P., Vermeer, H., Spoolder, H.A.M., Hendriks, H.J.M., Hopster, H. (2006) Formalised review of environmental enrichment for pigs in relation to political decision making. *Applied Animal Behaviour Science*, 98: pp. 165-182.
19. Jensen, M.B. and Pedersen, L.J. (2007). The value assigned to six different rooting materials by growing pigs. *Applied Animal Behaviour Science*, 108: 31-44.



20. Munsterhjelm, C., Peltoniemi, O.A., Heinonen, M., Hälli, O., Karhapää, M. and Valros, A., 2009. Experience of moderate bedding affects behaviour of growing pigs. *Applied Animal Behaviour Science*, 118: pp.42-53.
21. Oostindjer, M., Bolhuis, J.E., Mendl, M., Held, S., Gerrits, W., Van den Brand, H. and Kemp, B., (2010). Effects of environmental enrichment and loose housing of lactating sows on piglet performance before and after weaning. *Journal of Animal Science*, 88(11): pp. 3554-3562.
22. Petersen, V., Simonsen, H.B. and Lawson, L.G. (1995). The effect of environmental stimulation on the development of behaviour in pigs. *Applied Animal Behaviour Science*. 45: 215-224.
23. Hötzel, M.J., Machado Fo, L.C.P., Wolf, F.M. and Costa, O.A.D. (2004) Behaviour of sows and piglets reared in intensive outdoor or indoor systems. *Applied Animal Behaviour Science*. 86: 27-39.

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