



When straw availability is limited, this can cause problems for producers who keep pigs in straw-based systems. As well as a potentially poor straw harvest, in some areas straw is increasingly being used as a biofuel and with an already limited availability the cost of straw is going to increase.

There are many different bedding options available but their cost and effectiveness varies. This guide aims to help you to understand more about the alternative bedding options that you could consider.

Remember, bedding materials should be comfortable to lie on, non-abrasive, non-slippery, highly absorbent and have low levels of environmental bacteria and mycotoxin contamination.

Cereal straws

Straw has good thermal properties and moderate absorption capacity making it an effective bedding material. Usually pig units use wheat and barley straw and occasionally oat straw, some may even use bean straw. However, due to changes in cropping and weather conditions it could mean the range of straw and bedding types used may need to become wider.

Barley straw

Commonly used on pig units barley straw is soft and does not contain much dust. It is, however, the least absorbent of all straw types and is about 33% less absorbent than oat straw.

Wheat straw

Wheat straw is the most commonly used straw on pig units; it is quite brittle, not as soft as barley and has wider stalks. It is about 25% less absorbent than oat straw and is the least palatable of all the straws.

Oat straw

Oat straw is softer than wheat straw and therefore more absorbent than all other straws and 10% more absorbent than sawdust. It can be expensive as it has feeding value for cattle and horses and is highly palatable. It is worth bearing in mind oat straw is usually very light and fluffy so will blow away quite easily on outdoor units.

Rye straw

Where available, rye straw can be a suitable source of bedding, however, as rye is particularly susceptible to ergot infestation it is important to check that the source is ergot-free. Ergot-contaminated straw can cause reproductive issues in pregnant sows.

Triticale straw

This is around 25% less absorbent than oat straw and is most similar to wheat straw, although a little harder. For a yield equivalent to wheat or barley, triticale produces a 30% larger volume of straw, which is of direct interest to livestock farmers.

Remember: Any straw used for bedding must be clean, bright and free of dust and mould.

How to make straw go further

- Consider using alternative straw/materials, eg rape, pea or bean straw for base layers for deep litter systems/dry sow arcs
- Try to minimise dunging areas if possible
- Ensure drainage is good
- Keep a close eye on drinkers and feeders to avoid unnecessary spillage leading to spoiling
- Consider the positioning of arcs; try to avoid wet holes
- Store straw so that it is as protected from the elements as possible; this will reduce the number of wasted bales as well as reducing the risk of mycotoxin contamination and the associated deterioration in unit performance.



Alternatives to cereal straw

Research has shown that woodchip and coarse wood shavings, pea haulm and rape haulm all have good drainage properties and are good underneath straw. Shredded paper also works well mixed in with straw.

Rape straw

Rape straw has a high oil content and therefore a high calorific value as a biofuel; the calorific value of rape straw is comparable to other types of biomass fuel, such as wood pellets. It is difficult to dry correctly for use as a bedding material and the bales can be particularly volatile and ignite easily when stored. It has a stalky structure and is therefore not suitable for young pigs and is best used as a bottom layer with a cereal straw on top. It can also be hard to get hold of as, from an arable farmer's perspective, it is a valuable source of P and K.

Miscanthus (Elephant Grass)

Miscanthus is highly absorbent and can absorb up to three times its own weight in moisture, it also composts down quickly. It is however a high-yielding energy crop so getting hold of it for bedding could prove difficult as it has value as a biofuel.

Hemp straw

This is soft and absorbent and composts down efficiently. A potential problem with this straw is that it can easily get caught up and carried around by pigs, meaning that outdoor sows could end up inadvertently emptying their huts!

Pea and bean straw

Pea straw is often used as a cattle feedstuff but bean straw can be baled for bedding. It is very thick and brittle and this abrasiveness means it may not be suitable for younger pigs. Units have had mixed results by using bean straw in sow and finisher systems. It holds no feed value and is unpalatable; pigs can eat up to 2kg of cereal straw a day but this cannot be achieved with bean straw.

Changing from cereal straw to bean straw to use up stocks can lead to vice issues so if using pea and bean straw be vigilant for any issues developing.

Woodchip/coarse wood shavings

Woodchip/coarse wood shavings (about 50mm in size) can sometimes be obtained from processing plants and joinery manufacture where it is a by-product. It can usually be obtained free of charge as the plant would need to pay around £50/T to dispose of it at a landfill site; producers generally only need to pay the transport costs to get it to the farm. Home-grown wood or some types of recycled wood that can be chipped on the farm are likely to be the most cost-effective options.



Miscanthus



Wood shavings



Coarse sawdust

Alternatives to cereal straw

Producers who have experience of using woodchip have not had problems with metal in the product as it is checked using magnets before leaving the plant. However, woodchip can sometimes contain small pieces of plastic or paper. Producers have also noted that pigs seem to thrive on woodchip and that the air quality is good as the coarse sawdust is extremely absorbent.

Note: Fine sawdust is not a suitable bedding material as it can be dusty and potentially pose a health problem for workers and animals

It is worth bearing in mind, however, that woodchip could become quite valuable from June 2011 onwards and possibly unfeasible for using as bedding, because of the Renewable Heat Incentive Tariff which will financially assist individuals who install renewable technologies which produce heat, this includes biomass boilers which burn solid biomass such as woodchip.

Note: A waste exemption will need to be registered with the Environment Agency to use untreated waste wood as animal bedding. The exemption is U8 and further details can be found on the EA website, the exemption is free of charge and can be registered online or on a paper form.

<http://www.environment-agency.gov.uk/business/topics/permitting/116318.aspx>

Shredded paper

Shredded paper is dust-free, costs little, is very absorbent and makes an excellent bedding material, especially in the farrowing house; it would be an ideal option if you were close to a recycling centre that had an abundance of this product. It is light to handle and can be packaged in bales which facilitate transportation.

Similarly, shredded tissue and tea bag material has excellent absorbency and hygienic properties, so could be an option if you are near a plentiful source.

Note: Certain products cannot be used for bedding material, eg poultry litter, recycled rubber, glossy paper and woodchip produced from wood that has had chemical preservatives or glues.

Some of the alternative bedding materials mentioned above can be used in conjunction with traditional cereal straw. For example, woodchip, pea and rape straw can work well for drainage and are good underneath straw. Paper also works well mixed in with straw.

Bedding absorbency

The University of Iowa tested a number of alternative bedding types for absorbency in 2006 (see table). Maize stalks and oat straw were found to have the best absorbency, being able to absorb about three times their weight in water, while shredded paper absorbed about twice its weight in water. Maize stalks would only be available when the cob is combined-off for animal feed, rather than when the whole plant is used for silage.

Mean absorbencies of different bedding types

Materials	Mean absorbency factor
Oat straw	2.86
Cornstalks (Maize stalks)	2.70
Shredded paper	2.08
Triticale straw	1.97

Source: Iowa State University Animal Industry Report 2006



Shredded paper

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