New Entrants to Farming

Alternative Bedding Materials

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Bedding livestock on straw is for most farmers the usual practice. However in recent years straw availability, the quality and the high costs associated with the obtainability of straw have seen a rise in alternative bedding materials used by producers.

Reasons why you might consider using an alternative bedding product?

- Increasing price of straw
- Straw availability & obtainability
- Available straw is poorer/lesser quality
- Prioritise straw for young stock and calving/lambing
- Prioritise straw for feed & winter rations
- Animal health & welfare
- Lessens straw reliance
- Increasing variable costs

Livestock will freely lie on a comfortable and dry bed. A dry bed reduces humidity and will result in less contact for the animal with dung and urine, with a subsequent reduction in the risk of disease. It is important that lactating animals are kept clean as their young spend the majority of their time lying down. It is important that they have a clean dry bed to lie among. Do not hold back on bedding for newly born or young animals as by doing so you will increase the risk of E.coli infections, such as scours, navel ill, etc.

There are many alternative bedding options available (mostly wood based) however before considering the use of a straw alternative you need to consider the objectives of bedding to ensure that that the material is fit for purpose.

When thinking of using a new bedding material consider if it:
- will keep stock dry
- will keep stock clean
- will provide stock with a comfortable bed
- will maintain a healthy environment for stock and stockmen
- is readily available
- is easy to store
- is cost effective
- will produce manure that can be applied to land (composting may be required)

Care should be taken when choosing a bedding material so that contaminants such as nails, staples, screws, other metals, plastic, glass and paints have been removed.

Bedding needs to be dry however, it is important to remember that very dry, dusty and mouldy bedding could cause health problems such as pneumonia and abortions. In addition, bedding animals in these conditions does not provide a good working environment for farmers.

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A good bedding material should be:

- **Comfortable**
- **Non-abrasive**
- **Not slippery**
- **Absorbent**

Bedding has a significant bearing on the health and welfare of stock. Livestock kept in poorly bedded conditions will not be as productive and can be more susceptible to disease. There will also be less need for clipping finished cattle prior to slaughter if they are adequately bedded.

Bedding Materials

Cereal Straw

Straw is the most commonly used bedding with barley and wheat varieties likely to be more common over rape and oat straw. All cereal straw can be used for bedding. The most effective will be straw with the longest fibre (stem), maximising the physical structure of the bedding.

Availability	Barley, Wheat and Oat straw likely to remain most abundant varieties available. Weather and location have a major impact on straw availability.
Absorbency	Good absorbency. Good quality straw generally has a moisture content of 15-20%. Oat straw is more absorbent than Barley and Wheat straw. Barley straw is more robust and tends to last longer than wheat straw which, is brittle and breaks down easily.
Quantity	Deep litter bedding preferred method – topping up bedding as required. Straw bedders/blowers can be used when bedding.
Benefits	Provides a warm comfortable bed. High fertiliser (Farm Yard Manure) values.
Disadvantages	Price and quality is variable year on year. Straw is very palatable to stock. This needs to be accounted for when rationing.
Storage	Straw should ideally be stored inside, under cover or wrap. Wet straw has reduced absorbency.
Health & welfare	Can be dusty with the risk of causing respiratory problems particularly in young animals. Wet straw may harbour moulds.
Disposal	Straw breaks down easily and can be spread back onto farmland after use. Most often stored in a midden before application to the land (this should be stored following GAEC rules e.g. 10m from a watercourse etc.).

Woodchip

Woodchips must be from untreated wood & free from contaminants

Woodchips (generally the size of a 50p coin) create a good free draining bed. Larger woodchips (up to fist size) can be used in outside corrals. For best results it is recommended that the moisture content of the woodchip should be less than 30% (preferable 20%) to maximise absorbency.

Availability	Good availability from wood processing plants. Home-grown wood can be used but should be dried for up to 12months beforehand.
Absorbency	Moisture content should be below 30%. Chips are free draining, allowing urine to pass through. The bottom layer absorbs moisture leaving the top layer relatively dry.
Quantity	10-12cm initial depth. The woodchips can be topped up as required throughout the housing period. Any moist diets such as low dry matter silage based rations may require more frequent 'top up'. Stock will spread as they move around.
Benefits	High cleanliness levels. Little to no dust – reducing risk of repository disease. Less risk of mould growth.
Disadvantages	Competition from equestrian industry and demand from biomass boilers likely to affect demand and price. May contain contaminants.
Storage	Must be stored inside and kept dry. Adequate storage is required – chips are bulky.
Health & welfare	Stock are clean. Chips don't cling to the coats of cattle. It's imperative to ensure cattle have a form of roughage in their diet if straw is replaced as a bedding.
Disposal	Woodchips require composting before being applied back onto land and may need to be turned during this time. Should not be applied until fully broken down. No waste exception is required (Scotland) for the application of spent bedding and manure to land. However storage and land application must comply with the CAR GBR 18. Contact SEPA for further information.

Woodfines

Woodfines must be from untreated wood & free from contaminants

Woodfines are made from recycled wood that would have gone to landfill. It consists of finely chopped MDF, offcuts and pallets, etc. which go through an intensive cleaning process using magnets. Although the product will be clean it cannot be guaranteed 100% contaminant free.

Availability	Readily available throughout Scotland. Often sold on a grade basis – depending on the magnetic process. Grade 1 usually has undergone a more intense cleaning process and will have less risk of contaminants. Price increases with grade. Often sold under different brand names.
Absorbency	Good absorbency. Top layer dries out keeping dampness away from stock. Wet woodfine material will have little to no absorbency.
Quantity	10-15cm initial depth. Can be topped up as required and benefits from top layer being opened up/turned over with loader. Stock will spread as they move around.
Benefits	Recycled timber produces a natural warmth – less energy is used by cattle to keep warm therefore potential for better weight gains Doesn't cling or stick to coats keeping cattle cleaner. Particularly good for show cattle. Useful as a base layer for stock holding areas for handling and shearing. Price is likely to vary depending on location and availability of recyclable wood Cannot be guaranteed to be 100% free from contaminants.
Storage	Best stored inside however can be stored outside. Woodfines will form a seal of around an inch meaning the bulk of the pile is dry underneath however the outside layer will be lost due to wetness.
Health & welfare	Depending on dryness can be slightly dusty. Cattle do not eat it – potential for better weights gains as stock eat concentrates in place of bedding. It is imperative to ensure cattle have access to a form of roughage in their diet if straw is replaced as a bedding
Disposal	May or may not require composting (depending on particle size) before spreading. No waste exception is required (Scotland) for the application of spent bedding and manure to land. However storage and land application must comply with the CAR GBR 18. Contact SEPA for further information.

Sawdust & Shavings

Sawdust and Shavings must be from untreated wood & free from contaminants

Sawdust can be very variable depending on the source of the timber. Drainage of urine is initially good, however keeping the bed dry overtime can become difficult and is dependent on the sawdust absorbing moisture.

Shavings are thin slivers of wood more commonly used in bedding individual animals and in the equine industry.

Availability	Sawdust and shaving products are widely available in Scotland from wood processors and local saw mills. Can be bought as pre-packed bales however these tend to be far more expensive then bulk delivery. Bulk supplies of wood shavings mixed with small woodchips are also available.
Absorbency	Fair to good levels of absorbency. Softwood varieties are more absorbent than hardwood.
Quantity	Suggested approach is to bed at a depth of approx. 60cm. Sawdust can be stored in a pile towards the back of the shed/pen for cattle to spread as required. Works well in a straw combination – alternating the two materials.
Benefits	Sawdust produces a comfortable bed. Useful for bedding individual animals i.e. bull pens or as a base for lambing pens. Useful as a base layer for holding areas for handling and shearing.
Disadvantages	Damp sawdust can harbour moulds. Stock tend to walk through it rather on top of it eventually making a seal. Fine sawdust can get into fleeces.
Storage	Sawdust and shavings should be stored inside. Care should be taken with damp sawdust, which can heat in storage – potential risk of combustion.
Health & welfare	There are potential respiratory risks to stock and stockmen of using very dry dusty sawdust especially from hardwood varieties. Dry dustiness can irritate eyes Sawdust of very fine particle size can cake onto teats.
Disposal	No waste exception is required (Scotland) for the application of spent bedding and manure to land. However storage and land application must comply with the CAR GBR 18. Contact SEPA for further information.

Sand

Sand is inorganic and is used commonly in the dairy industry as well as in cubicle housing systems. The composition of sand varies depending on source.

Availability	Depends on location.
Absorbency	A courser sand is freer draining than a finer sand. Can become compacted with pools of urine settling on the surface.
Quantity	Best used in cubicle systems and replenished as necessary. Sand may need to be raked through.
Benefits	Bacterial build up is slower.
	Produces a clean dust free bedding.
Disadvantages	Not recommended for calving cows – tends to stick to new-born calves. Sand is abrasive and can accelerate wearing of slurry/muck machinery and equipment. Settles in slurry lagoons.
Storage	Usually bought as required.
Health & welfare	Courser sand can be abrasive. Sticks to udders and teats.
Disposal	Contact SEPA and or local authority for further information. Spread ability depends on source.

Other Alternatives

There are of course more options other than the aforementioned (which tend to be more common). Peat has commonly been used as bedding on the West Coast and absorbs three to four times more than straw. The muck can be, readily spread back onto the ground, this has high nutritional properties for the soil. However, there is a difficulty in sourcing peat, which is dry enough to be used for bedding. Peat can work well mixed with straw, keeping the peat open otherwise it can tend to harden on top. Its black appearance often puts farmers off as it can give the impression of being dirty.

Bracken and rushes are options offering absorbency levels similar to that of straw providing both a comfortable and durable bed. Rushes are ideal as a base layer before straw. The concern with rushes is the risk of spreading the seeds in the bedding. There is a risk of spores with bracken, which are carcinogenic.

Rape straw and pea haulm can be used as bedding. The stemmy structure of these alternative straws provide excellent drainage and work well when used as bottom layer with cereal straw on top. Straw usage can be reduced when using this method of bedding.

Comparison of Bedding Materials

	Physical Structure	Drainage	Mucking Out Interval	Value as Fertiliser	Land Spread Ability
Barley, Oat & Wheat Straw	4	4	6 months	4	3
Rape Straw **Pea Haulm**	5	5	6 months	4	3
Sawdust	1	4	1-2 months	2	2
Shavings	2	4	2-3months	1	2
Woodfines	3	3	2-3months	1	2
Woodchips	4	5	6 months	1	1
Peat	3	5	1-2 months	5	3
Sand	3	4	2-3months	2	1

Rating 5 = excellent to 1 = poor