

Cow comfort has improved considerably in recent years on UK dairy units

Life's a beach

During the past decade using sand to bed cubicles has become the gold standard. Producers are also increasingly recognising the important role that housing design and bedding has to play not only with regard to udder health, but also overall cow health, production and efficiency.

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Richard Davies: "Ventilation requires more attention"

Five-star accommodation? Not quite, but UK producers are certainly getting close as far as cow comfort is concerned. Not only has the past 10 years seen a significant increase in producers installing mattresses and mats in cubicles, the bedding materials have also evolved with more and more producers opting for sand, rather than straw or sawdust. Sand has certainly taken off,

according to The Dairy Group's dairy housing consultant Brian Pocknee. "Trials have shown that cows do tend to lie down for longer periods on sand beds and that mastitis incidence can also be reduced. But, like anything else, sand has to be installed and managed properly.

Sand management

"Sand is inert – no bacteria can grow in it provided it's clean and dry. But if it's

wet and dirty and poorly managed then it can become a threat to udder health – just like any other bedding material. He stresses that sand is not for every body. "It won't suit every system. If you have slats it's a non starter and the same if you have a weeping wall slurry system."

Some contractors may also refuse to carry out slurry handling and spreading work on units using sand as bedding. "Sand and machinery don't mix well.



Soft sand: properly managed, this bedding is hard to beat in terms of comfort

Sand-bedding solutions

Such is the increase in popularity of sand-bedded cubicles that machinery has now been developed to help producers manage them.

A UK company, Kitt Agri, is offering a range of these time and labour saving machines to aid efficient management of sand bed systems. The range of kit is well established in the US, where sand beds originated, but brand new to the UK market.

Cubicle bases are usually constructed with a 2% slope from front to back. With a rubber mattress this allows milk and urine to flow down the slope to the manure alley. "But, in the case of a sand bed, producers tend to put more sand at the front to achieve this slope and this is difficult to maintain as the cow will try to move the sand back towards the heel stone," explains the company's Tim Hamilton. "When the sand becomes lower at the front than at the back, the cow could find it more difficult to get up."

Constant 'grooming' of the sand is a critical part of management. Recent research from the University of British Columbia found that sand level is linked to lying time. "As sand level drops below the curb, cows spend less time lying in the stall. Lying times decrease by 10 minutes for every 1cm decrease in sand level below the curb.

"If sand is added only once every three days, and not groomed in between, we can soon lose between 20 and 30 minutes of lying time, as well as the associated milk production loss and possible effect on lameness," says Mr Hamilton.



Side shooter: designed to spread sand – or sawdust – into cubicles

Cubicles should, therefore, be filled frequently to maintain a sand level up to the top of the heel stone at the back of the stall. This would require a sand level of up to 12.5cm higher at the front of the stall immediately after filling and no lower than the level of the heel stone when refilling is required.

Mr Hamilton adds that deep sand beds should be cleaned out completely every six to 12 months as the bedding becomes contaminated with milk urine and manure.

The company's products include a range of side shooter buckets, designed to spread sand or sawdust into free stall barns and to back fill plus many other applications.

The bucket contains a positive-drive conveyor that dispenses material from either side.

A range of adjustable alley scrapers,

which can be hydraulically adjusted to multiple alley widths, are also available, as are attachments such as the Sandman, which is designed to aerate, slope and groom sand cubicles in one step without the drudgery of hand raking.

"This will increase cow comfort, promoting higher yields and create a cleaner, drier and properly sloped cow bed to minimise bacteria growth," says Mr Hamilton.

The Extractor removes soiled and bacteria-laden sand from the stall. The auger removes and directs the bedding into the aisle for clean up by bucket.

And the Mat Mate is designed to brush off organic matter from rubber mattresses more effectively than hand brushing.

The sprayer then applies a thin coat of detergent to prevent bacterial growth and promote udder hygiene.

Sand causes a lot of wear and tear on equipment."

But those that do have it swear by it. And they're also acutely aware of the added 'cow comfort' bonus. "Who wouldn't want to lie on a soft, sandy beach for long periods of time? That's exactly what cows do on well-managed sand bedded cubicles. All producers want to see cows lying for up to 12 hours a day, chewing the cud and producing milk, and, if you get cow comfort right, then you're likely to get that."

Dr Pocknee says that the penny has finally dropped with regard to cow comfort and production. "Producers are much more aware of the link between the two and many have seen evidence

of it on their own units. Something small, like removing or repositioning a 'restrictive' head rail in a row of cubicles, can encourage cows to lie down – and for longer – and will have a myriad of positive effects on the herd; From reduced lameness and mastitis rates, through to better fertility and improved milk yields.

"If a cow is stressed, because she can't easily lie down or lie down comfortably for long periods of time, this will impact on health, fertility, production and efficiency."

DairyCo's cow housing specialist Richard Davies agrees: "Producers are aware of the benefits that improved cow comfort can bring. Many producers say that the

benefits of installing new cubicles or putting up a new cow house can be seen in the milking parlour. They also see a reduction in swollen hocks, bumps and bruises."

Larger cows

Mr Davies says that many cow houses were built in the 70s and 80s, when grant funding was available. "These facilities are now well past their best and the cows that they're housing are completely different to those that they accommodated 30 or 40 years ago."

Back then, the average weight of a cow was about 200kg lighter than today – and cows were obviously smaller by default.



“But some producers are still trying to fit today’s cows in the same cubicles and shed, when they need larger cubicles, wider passageways and bigger sheds.”

The recommended cubicle width has stayed the same, but length has increased. “Now it should be at least 2.7m long – that’s about 0.3m longer than you see on units that need updating,” says Dr Pocknee.

“Passageways need to be wider too. Cubicle house walk ways are typically around 2.5m wide, but closer to 3.5m is the ideal. This improves social interaction and also aids heat detection as cows can display signs of oestrus more easily.”

He adds that feed passageways should be wider still, with most at around 3.6m and the ideal being around 4.5m.

“These figures have changed during the past decade due to our increased knowledge about cow behaviour and how they interact with each other.”

More air

Despite progress in cubicle design and bedding during the past 20 years, little improvement has been made in ventilation. “I’d estimate that 50% of new buildings still fail to offer adequate ventilation,” says Dr Pocknee. “There’s just not enough air movement in many cow houses.”

He says that ventilation must be improved during the next decade. “We have to get it right, particularly as there’s a move to herds being housed all year round.

“Producers would do well to remember that a 650kg Holstein cow will produce about 10 litres of moisture per day in respiration, so a 100-cow herd will produce around 1,000 litres of water a day.

“If that can’t escape through ventilation then it falls back onto the bedding and the cows. And a wet bed is a breeding ground for bacteria.

“As far as I know, no animal has ever died from having too much fresh air,” he adds.

DairyCo’s Richard Davies agrees that ventilation still requires attention on many units. “It’s something that tends to be forgotten about. I see speak to quite a few producers who have put up new buildings and then come to us for advice because the ventilation isn’t adequate.

“It’s important to consult before you put up a new building as it’s much trickier to put something like that right later on.

“The good news is that sorting out ventilation is rarely expensive – it’s a matter of getting the inlet and outlet sizes right. And fresh air is free,” he adds.

Handling facilities

Something else that Mr Davies would like to see more of during the next 10 years is handling facilities. “It’s an area that requires attention on many units and, again, it’s something that can be solved without a huge investment.”

He says that a shedding system is essential on every dairy unit. “It saves time, labour and reduces the amount of stress on the cows – and staff.

“There’s nothing worse than trying to separate five or six cows out from a 200-cow herd. It takes two people, who often end up frustrated, and the cows get stressed too.

“If your vet charges by the hour, it could be a particularly good investment. If he arrives and the cows he needs to see are waiting for him in the holding pen then everyone’s happy.” |

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