

Stocking rate and sand are vital to successful management

# Adding comfort to concrete

We take a timely look at loose or straw yards and the key areas where improvements can be made. Our experts also offer some practical tips and advice on straw yard management to maximise cow health, welfare and productivity while at the same time keeping costs to a minimum.

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**H**ousing 110 cows in a 100-cubicle cow house is a definite no no. So why do so many producers exceed the stocking rate of a loose yard? "Because they think they can," says The Dairy Group's dairy housing consultant Brian Pocknee, "because cows will still be able to lie down, even if conditions are cramped and bedding and ventilation are put under pressure as a result." He says that the ideal minimum area within the bedded area is seven square metres per cow and between 2.5 and 3m<sup>2</sup> of passageway area per cow. "And it's essential that these figures are observed if cow health, welfare and productivity are to be maximised," he says. "There's literally no space for cutting corners here. There will be consequences on units that do."

Dr Pocknee stresses that these figures are the definite minimum. "Ideally between nine and 10 square metres is my goal. The building standards for cattle buildings – BS5502-40, 2005 – should be seen as minimum requirements, but even these are not being followed in many new builds." The exact space needed per animal will depend on their size (see Table 1), according to Promar senior consultant Paul Henman. "Yield will also influence this. Higher yields means a higher dry matter intake, and that means more dung. And ration dry matter will also influence the dry matter percentage of the dung – wet rations can lead to more straw use." Genus ABS UK's John Cook recommends 10 square metres per cow for dry cow housing: "And

for milking cows you should allow a square metre for every 1,000kg of milk production, so for a 10,000kg-herd that's 10 square metres per cow." And straw yards should be no more than 10-metres deep according to Dr Pocknee, enough to put in two rows of cubicles. "That's the ideal. If the yard is shallower then there's not enough room and deeper is not an efficient use of space. "As a rule of thumb I say that a loose yard should readily convert to a cubicle house. It requires the same area per cow and it's one way to ensure that the loose house is designed properly, in terms of lying area and feed passage access." Water access is important too. Brian Pocknee stresses that troughs should only be accessible from the passageways.

## Completely separate

"If they had access from the straw yard then the bedding around the trough would get churned up and wet. And cows milling around in that area would also reduce the available area for cows to lie down. This, in turn, increases stocking rate on the rest of the bedded area making it excessively wet and dirty. So keep the bedded areas and water trough completely separate." John Cook agrees: "Water troughs should be sited so when the cow drinks she is on hard standing and therefore likely to urinate on the concrete and not the straw bed. And a 2% slope on the building floors also helps to carry any liquids away from the bedded area." Paul Henman adds that lids for water troughs may also be useful: "They can help to avoid filling the troughs with straw in sheds where a straw blower or shredder is used for bedding up.

"Talking of such equipment, straw shredders are recommended as they spread bedding more evenly and reduce the usage – and waste. And that helps to keep costs under control."

Excessive stocking rate is one of the main problems that Brian Pocknee sees on units with loose yards and with that comes disease, particularly mastitis and rising cell counts, as well as lameness.

"It's easy, in a psychological sense, to

*Adequate area: avoid over crowding in straw yards by sticking to the recommended stocking rate*



approx. age (months)	approx. weight (kg)	straw yards sq m (sq ft)			trough mm (inches)
		bed	loafing	total	
up to 6 weeks	60			single 1.35 (14.5')	350 (14")
up to 2 months	80	group pens	1.80 (19')	single 1.80 (19')	400 (16")
2-3 months	100	1.60 (17')	0.80 (9')	2.40 (26')	400 (16")
4-5 months	150	2.00 (22')	1.00 (11')	3.00 (32')	450 (18")
6-8 months	200	2.40 (26')	1.10 (12')	3.50 (38')	450 (18")
10-12 months	300	3.00 (32')	1.20 (13')	4.20 (45')	500 (20")
14-16 months	400	4.00 (43')	1.40 (15')	5.40 (58')	550 (22")
18-20 months	500	5.00 (54')	1.75 (19')	6.75 (73')	600 (24")
24+ months	600	6.00 (65')	2.00 (22')	8.00 (86')	650 (26")
mature	700	6.25 (67')	2.20 (24')	8.45 (91')	750 (30")
mature	800	6.50 (70')	2.30 (25')	8.80 (95')	750 (30")

Notes:

- In wholly bedded yards use the total figures
- Trough lengths are assuming all stock are feeding simultaneously. In ad-lib systems the feed face can be reduced by 65%
- Access to water – allow 75mm of trough space per cow

Table 1: Recommended minimum space allowances for dairy cows and young stock: straw yards and trough space (source: Promar International)

shoe horn a few more cows into a loose yard. But it's not just the limited lying area that puts strain on the cow and housing. Feed barrier space is also an issue, even on units that are TMR feeding," says Dr Pocknee. "You must allow at least 0.75m per cow in order to maximise intakes. Remember that cows are herd animals. They like to do everything together and there should be enough space to allow them to do that." "Good ventilation is crucial too," adds Mr Cook. "It will help to keep the bed dry if there's no condensation dripping off roof purlins, for example.

## Sand layer

"Providing a dry bed starts with the straw itself. It needs to be dry to start with, which means ideally more than 85% dry matter, or it will not be absorbent enough. And it needs to be stored in a dry place."

And once in the yards, a layer of soft washed sand, at between 15 and 20cm deep, beneath the straw will allow good drainage and help to keep the bed dry. Adding sand to the base of the lying area to be bedded also acts as a layer of insulation against the cold concrete floors that have been laid in many loose yards, according to Dr Pocknee. "This can remain when the yard is mucked out, removed and replaced or simply topped up. But the key is that when the house is bedded with straw again that the floor is 'warm' – the cows are not lying on concrete.

"Remember that sand is inert, so if it's clean it doesn't harbour bugs. And it's comfortable – how many millions of people pay to go and lie on it for two weeks every year?"

With sand at just £15 per tonne, it also represents good value for money compared to straw, which is currently around £65/tonne.

So, finally, what's the consensus on how frequently straw yards should be cleaned out? Paul Henman says milking cows should be mucked out every two to three weeks. "If cell counts are an issue then it may need to be done more regularly and more straw may be needed."

Brian Pocknee says at least every four to six weeks. "Adding a sand layer will extend the life of the straw bed, and help to prevent the surge in mastitis and cell counts that can occur after a shed has been mucked out. The cows are not going back onto a relatively thin layer of straw and cold concrete. It's not such a shock for their udders." |