

POOR PROGRESS IN HOUSING DESIGN COSTING CATTLE KEEPERS DEARLY

Cattle housing design has made "very disappointing" progress in the past 20 years when judged alongside performance improvements over the same period in mobile phones and computers, or tractors and cars. That's according to Jamie Robertson, research fellow from the University of Aberdeen and long-standing advocate of healthy housing.¹ On a 100-head unit, he reckons the avoidable cost of sub-optimum housing could easily rack up to more than £20,000 over a ten-year period.

Despite his many appearances at on-farm workshops, evening pub meetings and industry conferences, the present poor health status of many cattle buildings is all the more frustrating, he says, because how to put them right and be better off financially as a result can be summarised in two lines: "Read and apply the advice contained in two excellent EBLEX Better Returns Programme publications: 'Improve housing for better returns' and 'Pneumonia MOT'.^{2,3}

"Money is a big part of the deal on offer," he adds. Quoting SAC figures that a pneumonia outbreak would cost £21 per calf at risk - which includes those treated and untreated group-mates, he points out that in a 100-head unit such losses would amount to £2,100 a year.⁴

At an EBLEX on-farm workshop in October, he took a group of farmers through the fairly straightforward mathematics involved. The venue near Holbeach, Lincolnshire, was a redundant 1960s potato store that owner Richard Thompson of George Thompson (Farms) Ltd is converting to cattle housing in order to double throughput of his beef finishing enterprise.

"For 350kg live weight animals stocked at five square metres of floor space each, the most critical aspect for ventilation is providing about 0.1 square metres of air outlet per head, and at least double this of air inlet below eaves height," said Mr Robertson. "So for 160 cattle in this shed, we need 16 square metres of air outlet, which can be achieved by taking the ridge off the roof to a width of almost 50cm along the entire 35m length.

"For fresh air inlet, 32 square metres are needed. This can be achieved by taking out 1.5m depth of cladding from the eaves downwards, along both sides of the building, and installing 30% gap cladding or the equivalent ventilated curtain system. If you follow the EBLEX Pneumonia MOT guidelines to the letter, there are some additional refinements that take account of other factors like the angle of roof pitch, for example."

As well as ventilation, drainage can also have a bearing on cattle health, explained Mr Robertson. Externally, he said sound gutters and downpipes into below-ground drains were essential to minimise humidity of fresh air entering the building. Inside, floor slopes and drainage channels should be created to prevent standing water and sodden bedding.

At the workshop, mentioning an open ridge prompted questions about rain getting into the building. Mr Robertson calculated that, in an area with 60cm (30 inches) annual rainfall, a 0.5m gap along a 35m building would allow 10.5 cubic metres of rainwater into the building over the course of a year. In comparison, he said just one 350kg beast created 30 litres a day of moisture output, which would amount to 10,950 litres, or 10.95 cubic metres, a year (1 cu metre = 1,000 litres).

He added that upstand fixtures along an open ridge could help create an updraught, similar to the effect of a chimney on an open fire, which would deflect a large proportion of falling rain onto the roof. On the host farm, open ridges are original features on existing cattle buildings, creating good ventilation performance.

Meanwhile, as a former potato store, the example building had 15cm thickness of insulation on all internal surfaces, roof included. Once the ventilation inlets and outlets were created, Mr Robertson said insulation would be an asset. "It will conserve energy inside the building to drive the stack effect," he explained. "This will create a good air current to expel damp stale air through the ridge vent, drawing clean fresh air in from the outside to replace it."

1 Jamie Robertson, 14 October 2013. Personal communication. EBLEX meeting held at George Thompson (Farms) Ltd, Holbeach Hurn, Spalding, Lincs, PE12 8JJ.

2 © EBLEX Ltd, 2008. [Improve beef housing for Better Returns](#). EBLEX Beef BRP Manual 6.

3 http://www.EBLEX.org.uk/wp/wp-content/uploads/2013/08/brp_b_Pneumonia_MOT270813.pdf, downloaded 3 December 2013.

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4 GJ Gunn & AW Stott, 1998. AACV, Sydney.

Despite drainage and ventilation being cornerstones of healthy housing, infectious causes of pneumonia cannot be eliminated and are also potentially ever-present in the disease prevention picture, according to Zoetis vet Sarah Ritter. "In calves from the dairy herd like those coming here, the first three months of life are the highest risk period," she advised workshop attendees. "Nationwide surveillance shows that the viruses RSV and PI3 are the main threats to very young calves, RSV in particular being highly pathogenic - that is, highly likely to cause serious disease and, all too often, a dead calf.

"There are two aspects of reducing pneumonia incidence: You minimise disease challenge, by creating healthy housing, for example; and you maximise each calf's ability to defend itself. This begins with colostrum, the best free medicine you can ever find. At least three litres within six hours of birth is the golden rule. It is important where possible to check colostrum quality, because quality and quantity of colostrum can be variable from cow to cow depending on a number of factors including milk yield and parity.

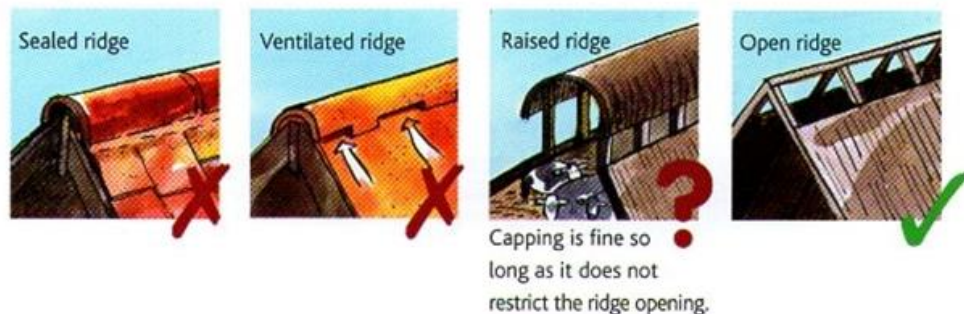
"In addition to this, a calf's defences against the main viral instigators of pneumonia can be strengthened by vaccination. For very young dairy calves, pure and cross breed alike, where appropriate, an intranasal vaccine can be given from nine days of age for protection against RSV and PI3.

"Healthy calf rearing is a four-legged stool: Colostrum, well drained and well ventilated housing, vaccination against pneumonia viruses, and compassionate daily care. But without the first two of these, even the very best rearers are likely to struggle.

"Before it's too late this winter, I urge cattle farmers now to take a critical look at their housing, study the EBLEX materials, and make some changes for the better that could well reduce pneumonia incidence and related costs and losses this very winter."

Ridge space requirements

In any pitch-roofed stock building, the ridge opening is critical:



One of the best ways to improve any livestock building is to remove the ridge, leaving open space. This will improve ventilation markedly and lead to improved animal performance. The 'chimney' effect prevents significant rain entering the house. Even over a wet winter housing period the amount of extra moisture entering through an open ridge will be small compared with that produced by housed stock - less than 5%.

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