

LAMENESS PREVENTION ENSURING COMFORTABLE CUBICLES TO MAXIMISE LYING TIME

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Alongside foot trimming, footbaths and lameness monitoring, cubicle comfort plays an important role in preventing lameness in housed dairy cows. The common use of abrasive concrete surfaces around farmyards and the often less than ideal underfoot hygiene emphasise the need for cows to have a comfortable place to lie down, rest and not be on their feet for longer than necessary. Over the course of the day, housed dairy cows should typically spend 12 – 14 hours resting in a cubicle with the remaining hours allocated to milking time, eating, drinking and social interaction with herd mates. Adequate cubicle comfort encourages cows to lie down more frequently which can reduce the risk of health issues such as lameness and improves milk production.



Cubicle comfort is defined by five key components

1. Cubicle hygiene

Scraping cubicles clean twice daily to remove manure and urine should be adequate for most herds to keep the cubicle bedding dry and avoid the build-up of infectious causes of lameness and mastitis. Excessive stocking rates in the cubicle house or a cubicle step-up below the recommended height of 18 – 20 cm often create situations where more frequent scraping of cubicles is recommended. Wet cubicle surfaces can effectively harbour bacteria. Applying a fresh layer or cubicle lime (with or without sawdust) after scraping the cubicles as well as good ventilation in the cubicle house reduces the presence of those bacteria.

2. Cubicle dimensions

Poor cubicle design will result in discomfort to your cows, increasing the risk of lameness. Having the right size cubicles for your herd ensures all cows can lie down and rise comfortably without injuring themselves and motivates cows to make full use of the cubicle for resting.

- In a herd of Holstein-Friesian cows, the length of a cubicle should be at least 2.35m (this includes at least 1.7m for the bedded lying area as well as 0.65m for the lunge zone in front of the brisket board) and at least 1.15m wide. In head-to-head cubicles, the lunge zone is partially shared between two cubicles and the span of the raised cubicle base should be 4.6m across.
- In a herd of Jersey cows, the length of a cubicle should be at least 2.10m (this includes at least 1.55m for the bedded lying area as well as 0.55m for the lunge zone in front of the brisket board) and at least 1.0m wide. In head-to-head cubicles, the lunge zone is partially shared between two cubicles and the span of the raised cubicle base should be 4.1m across.
- A crossbred herd may require dimensions between those for Holstein-Friesians and Jerseys, depending on cow size.
- Adjustability in the Brisket Board or Neck Rail positioning allows adaptation of the cubicles to meet the specific requirements for at least 90% of the herd based on cow size. The Brisket Board ensure proper positioning of the cow in the cubicle, preventing her from lying too far forward, limiting cubicle soiling, or backward, which can cause leg injuries. The Neck Rail should be position high enough to allow cows to easily lunge forward when rising, but still prevent cows from walking too far forward into the cubicle before lying down.
- A slope in the cubicle base of 1 in 20 from the front to the back is recommended to achieve adequate drainage of urine, milk and other fluid.
- Too many cows (more than 20%) perching or standing in cubicles is a sign of poor design or lack of cubicle comfort. Cows making multiple unsuccessful attempts to lie down or rise can also be a sign of undersized cubicles. Small changes to the Brisket Board or Neck Rail will often improve cubicle use and lying time. In some cases, especially where cubicles are facing a solid wall, more drastic interventions are needed to create more lunge space and allow full use of the cubicles.

3. Cubicle occupancy

At least 5% surplus in the number of cubicles to the number of cows in the shed allows all cows to lie down simultaneously while still providing a choice in resting space. Overcrowding in the cubicle house means cows will not achieve the adequate duration or frequency of resting, forcing cows to stand for extended periods and thus increasing the risk of foot problems and lameness.

More than 10% of cows standing in passageways or cows lying outside the cubicles during the night can indicate lack of available cubicles in the shed.

4. Cubicle accessibility

In addition to the quality of the lying space provided by the cubicle, the ease of getting in or out of cubicles also plays a part in maximising lying time for cows. Passageway width narrower than the recommended 3m will restrict the movement of cows leaving adjacent cubicles, making those cubicles less preferable to use in the first place. The space between the edge of the cubicle and a feed face should be at least 4.5m to allow easier movement of cows between feeding and resting and prevent actively feeding cows restricting cubicle access to cows wanting to lie down. Wider passages also reduce the level of manure contamination of cubicles.

Cubicle crossovers should be located every 22 spaces to allow for good cow flow and not create cul-de-sacs in the shed. Water troughs should be located at each of the cubicle crossovers to avoid competition for drinking water and reduce the distance cows have to walk to drink.

5. Cubicle bedding

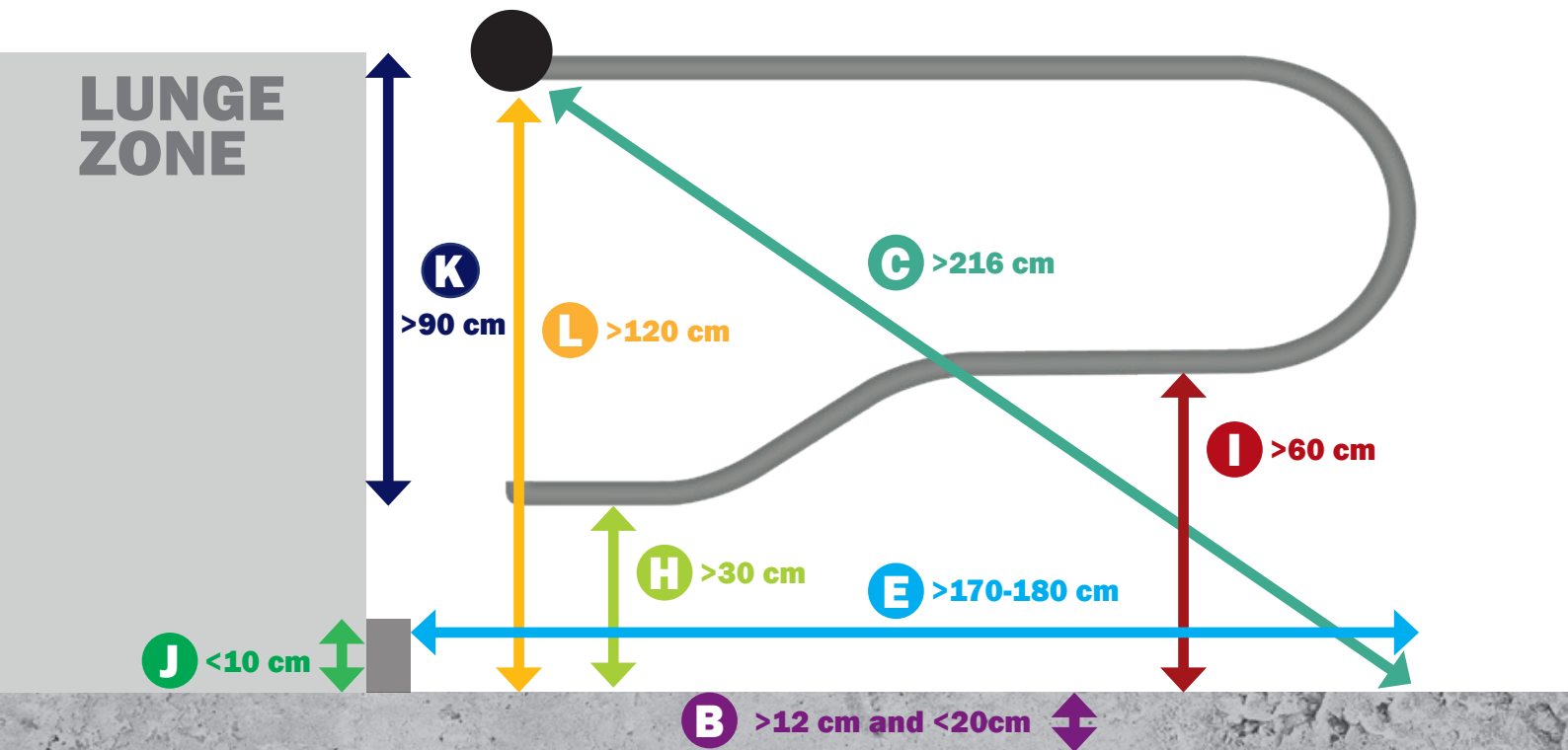
There are various options for cubicle bedding and as mentioned under cubicle hygiene, keeping the bedding clean and dry is important to reduce the presence of bacteria on the bedding. Deep cubicle bedding with sand, compost or other organic material is often recommended as offering the best comfort and reducing pressure on the cows' feet. However, these are not practical cubicle bedding materials for most Irish dairy herds. Bare concrete is unacceptable and a light layer of sawdust or cubicle lime does nothing to improve the lying surface comfort for the cow. Rubber mats or mattresses are most commonly used. Mattresses provide a higher level of cushioning for the cow compared to rubber mats, are easier to maintain on a daily basis, but may not be easily retrofitted in an existing cubicle house. Rubber mats need more maintenance and it is important to check all mats are securely in place to provide comfort to the cows and not create a trip hazard or make cubicles unusable.

How to quickly assess cubicle comfort

- Too many cows (more than 20%) perching or standing in cubicles is a sign of poor design or lack of cubicle comfort.
- Cows making multiple unsuccessful attempts to lie down or rise can also be a sign of undersized cubicles or inadequate bedding.
- Do cows fully fit in the cubicle? Cows should lie straight in the cubicle without any part of their body hanging over the edge.
- Check for skin lesions on hocks, knees and necks and general cow cleanliness. Properly designed and maintained cubicles should minimise these issues.

For more information on how cow housing contributes to lameness [click here](#).

The graphic below shows recommended cubicle dimensions for Holstein-Friesian cows over 600 kg.



Source: K.A Leach and H.R Whay 2009; The welfare quality lameness control programme for Dairy Cattle – Welfare quality report No. 14, p26 www.welfarequality.net/media/1122/wqr14.pdf

B – Cubicle rear curb height
C – Diagonal neck rail to rear
E – Brisket to rear of cubicle
G – Total length
H – Height of lowest rail at head end

I – Height of lowest rail at rear
J – Brisket board's height
K – Side lunge
L – Neck rail height
M – Lunge zone