

# FARM INFRASTRUCTURE CONSIDERATIONS TO REDUCE NON- INFECTIOUS LAMENESS - COW FLOW

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**D**airy farm infrastructure and cow flow play a significant role in the health and productivity of dairy cows, particularly in relation to lameness. The design and layout of grazing infrastructure, the milking parlour and dairy cow housing can all impact the incidence of lameness in a herd.

## Grazing infrastructure and cow flow

As cows make up to 600 return journeys between paddocks and the milking parlour each year, the layout of grazing infrastructure is crucial to overall herd performance. Efficient farm roadways connecting paddocks allows easy access to and from the parlour and between paddocks, reducing the time cows spend walking. Roadway layout must allow for good cow flow and have a suitable surface for walking speed and hoof health. Poorly designed or maintained roadways can lead to hoof injuries, contributing to lameness. Uneven surfaces and loose stones can cause mechanical trauma to the hoof, while muddy, wet surfaces can cause softening of the claw horn and skin.

In grazing herds, the quality of the roadways is the single most important factor in lameness prevention. For more detail on roadway design: <https://animalhealthireland.ie/assets/uploads/2023/07/HHC-Bulletin-July-2023-FINAL.pdf?dl=1>

## Milking Parlour and collecting yard

Good cow flow through the milking parlour improves milking efficiency and reduces both labour input and milking time during each milking. Inadequate space in the collecting yard, and incorrectly using the backing gate to push cows into the parlour results in slips and falls, causing trauma to the cows' feet. It is important to provide adequate space in the collecting yard for cows to organise themselves in their routine milking order after arriving at the parlour without having to shove and jostle for position. Floor surfaces should be non-slip and it is advised to use wide steps rather than slopes to overcome level differences. Minimizing the number of turns needed for cows to enter and exit the milking parlour improves cow flow and lowers the risk of lameness. Sharp turns at the parlour exits increase the shearing forces on the hoof which increases the risk of white line disease.

## Dairy cow housing

If cows do not have a comfortable place to lie, they will spend more time standing. Providing clean, comfortable housing is critical to the health and longevity of dairy cows. During the housing period, the aim should be to provide conditions similar to what cows experience at pasture with access to water, feed, air, space, comfortable resting place and daylight. Typically, housed cows will spend 12 to 14 hours a day resting and 2 to 3 hours a day standing or walking in passages. In cubicle housing, cubicle comfort is key and can be assessed based on cubicle occupancy, the number of cows standing or perching on the cubicle and the ease of getting up or lying down in the cubicle. Surplus cubicles to the number of cows in the shed is recommended. Incorrect cubicle dimensions can lead to discomfort and injuries, increasing the risk of lameness. Longer lying times promote the growth and development of strong, durable hooves.

If dairy cow housing lacks adequate feed space, they will push and crowd each other, leading to stress and trauma to hooves, often seen as white line disease and sole haemorrhage or “bruising”.

Typical bottle necks for cow flow around the farmyard:

1. Water troughs and feed barriers near the parlour entrance or exit.
2. Drafting gates and cattle shoots after the parlour exit.
3. Broken or slippery concrete floor surfaces in the collecting yard or passages.
4. Slippery slopes and slats in roadways.
5. Sharp bends to exit the milking parlour and around buildings.
6. Cul-de-sac passages in the cubicle house.

Addressing these potential bottlenecks can significantly improve cow flow and prevent lameness in dairy cows.

