



Get off to a good start with the right floor

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Once the dream of moving from a tie-stall facility to free-stall housing has become a reality, there are a number of decisions that need to be made. Here are a few factors to consider when choosing the type of floor your cows will be walking on.

Concrete surface

If concrete is the floor surface of choice, it is important to ensure that it is neither too rough nor completely smooth. Textured concrete can be too abrasive (Figure 1) while smooth concrete can be slippery. During the first few days in a new barn, cows are generally more agitated, and power struggles occur to establish the social standing of each cow. Increased walking on a rough surface can affect hoof health and cause lameness in the first weeks following the start of robotic milking.



Figure 1

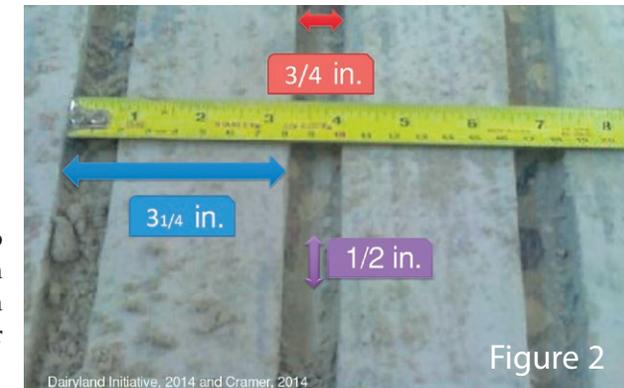


Figure 2



Figure 3



Figure 4

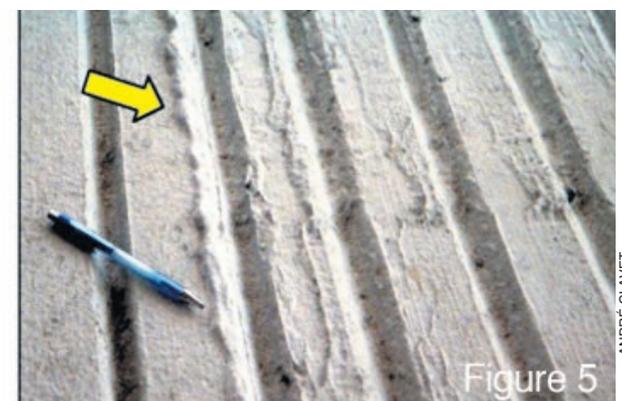


Figure 5

edges that could damage the animals' soles. Different techniques can be used to level the floor surface and eliminate any unevenness that could cause hoof damage; for example, you can use a tractor with weight on the shovel or concrete blocks dragged over the surface with an ATV or tractor. The new surface is ready for the animals' arrival when walking on it barefoot causes no pain.

What about grooves?

Grooving provides increased traction for cows as they move around. Ideally, all the alleys should be grooved; feed alleys and alleys between the rows of free stalls should be grooved in at least one direction, and right-angle passages should be grooved in both directions.

Dairyland Initiative makes the following recommendations:

- Longitudinal grooving: 3/4 inch width and 1/2 inch depth, with 3 1/4 inch spacing in the centre (Figure 2).
- Two-way grooving: the diamond pattern is popular (Figure 3). An Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) document (House, 2015) recommends grooves measuring 1/2 inch wide and 1/2 inch deep, with 4 inches and 6 inches of spacing in the centre. The area between the grooves must be flat.

Forms can be used to groove concrete floors as they cure. Although less costly, this method is riskier and requires some skill, since the optimal period for the operation is relatively short. If the concrete is too wet, some sliding may occur, partly filling in the grooves and making the floor surface uneven (Figure 4). On the other hand, if the concrete is too dry (Figure 5), ridges will form on the edges of the grooves, making the surface more abrasive and the floor no longer flat.

The new surface should be inspected carefully before the herd is transferred to ensure that there are no sharp

Does the concrete surface need to be treated before the animals arrive?

The pH of fresh concrete is extremely alkaline, which may irritate the cows' claw horns and skin. A 28-day curing period is thus recommended, after which the entire concrete surface should be cleaned with a power washer before moving the animals into the facility. If the animals must be moved into the new barn sooner, the concrete must be allowed to cure for at least seven days and then be cleaned with an acidic solution to neutralize its alkalinity. Check with the builder to see what type of solution is recommended.

Rubber surface

Although some studies show that there is little difference in production or animal behaviour whether the feed alleys are grooved or covered with rubber flooring, there is increasing evidence that rubber flooring presents some advantages in preventing lameness. The focus should be on areas where cows are standing and stationary: feed alleys, right-angle passages with water bowls, and in front of the robotic milker (if possible).

Here are some other points to consider with regard to rubber flooring in alleys:

- If the stalls are uncomfortable, some cows may prefer to lie down on the rubber flooring in the alley, which is likely to increase the somatic cell count.

- A recent Canadian study (Solano, 2016) showed that rest time was 29 minutes shorter in herds that used rubber flooring in the alleys as opposed to bare concrete. Note that the percentage of herds that had comfortable stall surfaces was low in this study, which confirms the need for a comfortable resting surface in the free stalls when using rubber flooring in alleys.
- If only half of the feed alley is covered with rubber flooring (near the feed bunk) and the other half is grooved concrete, dominant cows will favour the rubber surface and disturb other cows that are feeding. It is therefore preferable to cover the entire width of the alley with rubber flooring.
- Some types of rubber flooring can become slippery when wet. Discuss this with your supplier before purchasing flooring.

A clean surface

How manure is managed has a significant impact on foot health. The scraper must be adjusted properly to ensure the alleys are kept as clean as possible. Scraping should be done regularly, eight times per day. In very long buildings, this means scraping is practically a continuous process. Scraping more often means it is less likely for the manure to flow over the scraper as it is pushed forward.

As a rule, the manure should not touch the cow's dewclaw and, ideally, should not touch the coronary band. By keeping the floor as dry as possible and removing manure frequently, your cows are less likely to suffer from infectious lesions, such as digital dermatitis.

Get off to a good start

With healthy feet and a suitable floor surface, you increase your chances of a successful transfer to the new free-stall barn.