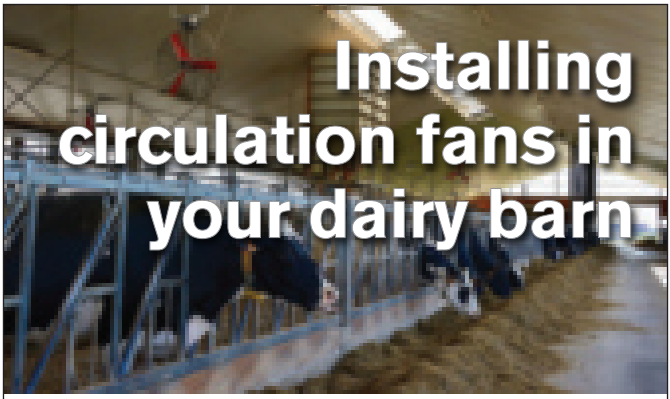

Installing circulation fans in your dairy barn

In order to determine the best place to mount a circulation fan in your dairy barn you have to consider several aspects. As every barn is built differently, customisation is the key to reach an optimal result. We have included a few guidelines for you below:

DO

- Provide a refreshing airflow over the cubicles. This is where the cows spent the largest amount of time. Save at least 1.5m of free space on the suction side of the fan for optimal efficiency.
- Make use of existing trusses to mount 130cm basket fans with a chain or to install smaller basket fans directly.
- Mount a 130cm basket fan between double cubicles. The reach of the fan is wide enough to provide both cubicles with a cooling effect.
- Mount the fans by extension of each other.
- Use spaces that do not need to be ventilated (such as the area for calves) for the suction side of the fan.

DO NOT

- Don't mount fans in places that the cows can reach. For a fan with a coarse-mesh grill, the minimal required height to mount the fan is 2.7m measuring from the bottom of the fan to the ground.
- Don't hang fans above the feeding racks. In practice, we see that this dries out the food, which can result in cows solely consuming the concentrate feed. This can, in turn, cause ruminal acidification. An additional disadvantage is that the cows are more likely to lay down on the manure grid in the cool air stream, increasing the risk of udder infections.
- Don't forget to make sure there are as few obstacles to the air stream as possible for the most effective and efficient use of fans. Take care of subtle obstacles such as feed robots for example.

Other locations in the barn

After seeing positive results near the cubicles, dairy farmers often decide to employ fans in the waiting or milking areas of the barn as well. In these areas, there is often less space for a large fan. We recommend using a smaller basket fan or a horizontal circulation fan with a casing here. The advantage of a fan with a casing is the more directional air stream with which the air speed remains high over a longer distance. This can be favourable when deciding on the ideal place of installation.

How many fans do I need to achieve the desired result?

While this depends heavily on the application, some general assumptions can be made for their use in dairy barns. The ideal number of fans partly depend on a set of installation choices, but there are a few other factors that influence the amount of fans you will need.

Air speed and air volume

When circulating air, it is important that a specific air speed can be reached and maintained. Cows experience a cooling effect when the air speed is above 2m/s. An additional advantage is that air above that speed also significantly reduces gadflies. Above an air speed of 2.5m/s, other types of flies are also kept away.

Area of effect and efficiency

When we look beyond all other influences and purely look at the fans themselves, we see that the 130cm basket fan can provide an air speed of 2m/s across a reach of around 15m. By mounting another fan after 15m, the moving air is sucked in again and blown through to another potential fan. This not only improves the area of effect of the fan but also increases its efficiency.

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