

Field Services



It can be difficult to keep fresh, dry and cool air around cows in the barn. As the temperature drops through the fall and winter, maintaining dry and fresh air becomes a challenge. Humidity, a big element in Nova Scotia weather, may cause wet stalls and floors, resulting in mastitis, high somatic cell counts, and lameness through digital dermatitis and heel horn erosion.

CowSignals: What do your Cows Tell You?

Cows sticking their noses out of the door or window, or cows grouped near doorways can often be mistaken for curiosity when they are actually seeking fresh air. When this happens, cows eat less and milk production drops. Rapid breathing is one of the first symptoms of poor ventilation.

A high producing cow should breathe between 10-30 times per minute. A single cow who is breathing rapidly (30- 60 times per minute), might have pain, fever, or inflammation of the lungs. If multiple cows are breathing rapidly, the air may not be ventilated well enough.

Seeing a few cows standing in stalls is another signal. This can indicate lameness, poor

bedding or bad stall design. Cows enduring heat stress tend to stay on their feet to cool off by letting the breeze move around them.

A simple way to test air quality is if you come out of a barn and your clothes don't smell of manure, the ventilation was ok. The air inside should be as fresh as outside.

The ideal temperature for a lactating dairy cow is 5-15°C. It is still bearable at -25°C; however a cow is in heat stress at + 22°C. Calves need warmer air - around 18°C for the first month. This makes it almost impossible to keep cows and calves happy and healthy in the same barn.

Where to Place Fans?

The most important place for fans is over the 'close up' cows (dry cows 3 weeks before calving) because they are a high risk group. The second most important place is over the stalls. A cow should lie down for 14 hours each day in a well-designed barn. That is a lot longer than the 6 hours cows spend at the feed bunk, which is the least important place for fans. If fans are installed above the stalls, it can be a good idea to use a thermostat so that they turn on automatically when the temperature rises above 18°C.

What Fans are Best?

Vertical fans (Big Ass Fans) move a lot of air, are very quiet and have a low energy requirement. They work best in high barns which aren't too wide (4-6 rows), with 4-5 meter (13 – 16 feet) open sides. They need to be able to suck in sufficient dry air from outside. If they are unable to access sufficient dry air, they will only circulate the moist air. Horizontal fans will blow air about 10x their diameter in distance. So, with a 60 cm (24 inch) diameter fan, the next fan should be located 6 meters (20 feet) away. It is essential to let fans bring in clean and dry air to cool the cows.

Free air is the cheapest. Building a barn on a hill may take advantage of free wind cooling. Limiting the number of walls in the barn, and not putting walls on the end of a row of stalls will also take advantage of natural air circulation. Get as much free air as possible. Make the side openings at least 4 metres (13 feet) high and put in curtains.

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