

BOVINE NEWSLETTER

Do Your Fans Suck?

TIPS TO ENSURE YOUR VENTILATION SYSTEM IS SUMMER READY

Summer temperatures, along with humidity and solar radiation, can add up to a big hit on your dairy's bottom line. Cows start to experience heat stress when the Temperature Humidity Index (THI) is above 72 F. When it is above 80 F, significant heat stress will occur. Water intake can increase by up to 5 times. Decreases in milk production, reproduction, feed efficiency (as much as 35% in unabated heat stress) and young stock growth may occur. Taking some time to evaluate all areas of concern (including water availability, ventilation, soakers, and ration adjustments) will help take a bite out of summertime production losses. This article will focus on areas of concern for the use of fans.

How Much Fan Power Do I Need?

The goal is to provide a high speed of air moving across the cows. Cows will need an air speed at 300-600 cfm (cubic feet per minute), and younger animals less, to help abate heat stress. In areas where THI may regularly be quite high (such as the holding area), you may want to consider adding soakers in addition to your fans.

0-2 months	50-100 cfm
2-12 months	60-130 cfm
12-24 months	80-180 cfm
>24 months	300-600 cfm

To generate enough fan power, you will need to make sure your fans are large enough or placed close enough together. While one large fan can provide a more energy efficient way to move air, having multiple smaller fans placed closer together may have a better impact as one cow standing in front of a large fan can significantly disrupt airflow pattern. A rule of thumb for how close fans should be is to use 10-blade diameters (e.g. 3 foot fans 30 feet apart, etc.). Fans will throw further than this, but again, cows standing in front of them will disrupt the flow, so having them a bit closer will help lessen this effect.

#1 Holding Area

#2 Milking Parlour

#3 Closeup Pen

#4 Calving Pen

#5 Sick Pen

#6 Fresh Pen

#7 High Producers

#8 Low Producers

Where Should Fans Be Located?

Which areas are the most important to cool? The list to the left highlights priority areas - if your cows are cool all day, but have to stand in a hot holding area for as little as 20 minutes, early embryonic death can occur. Make sure this area is prioritized for cooling and ventilation. When ventilating the freestalls, put fans over the inner row, then the feed bunk, and thirdly the outer row.

Fans should be installed as low as possible so they maximize air speed at the cow level, but need to be high enough to be out of the way of a cow's reach, or any equipment.

Fans should be tilted so they aim at the bottom of the next fan down the line - the higher up they are, the greater angle is needed. In the holding area, direct airflow at 180 degrees away from the parlour, or if this is not possible (if the ceiling is too low), across the pen in the direction of the prevailing winds.

A Word On Maintenance

Keeping your fans well maintained is important for them to operate at full capacity. Dust on guards and shutters can reduce efficiency by up to 40%. As much as an eighth of an inch of dust on the blades will decrease performance as well. Check the owner's manual to ensure you keep your fans clean and well lubricated at appropriate intervals. Damaged blades should be replaced, as should misaligned blades (vibration can cause misalignment).

By ensuring you have enough ventilation in key areas in your barn, you will help decrease the negative effects of heat stress this summer. Don't forget to also ensure the water availability is ample, your ration is ready for summer, and your cows are lying in clean, dry, comfortable stalls.
