

Cold Free-Stall Barns: Winter Ventilation Management (Keep Those Eave Inlets Open)

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Last winter's record cold temperatures and severe weather were a concern for some dairy producers with uninsulated, naturally ventilated free-stall dairy barns, who thought it was too cold and drafty for the cows. So this winter, some producers are thinking about tightening up their free-stall barns, closing the eave inlets, and trying to keep the barns warmer. Closing eave inlets and trying to keep naturally ventilated free-stall barns warm in the winter is not recommended. It could be a disaster.

Uninsulated, naturally ventilated barns are designed to be cold—within a few degrees of the outside air temperature. Closing eave inlets will create wet, damp conditions and lead to respiratory health problems. Wet, damp conditions will be evidenced by fog, condensation, frost on building surfaces, and high humidities.

At 30°F, a 1,100 lb dairy cow will give off about 20 lb of water vapor per day through respiration and losses through its skin (sweat). This moisture must be removed by ventilating air and it can take a ventilating rate of 100 cubic feet per minute per cow to remove it.

Closing eave inlets restricts the ventilating rate and causes moisture to accumulate in the barn. As moisture accumulates, it will begin to condense on cold surfaces, and if the surfaces are below freezing, frost will form.

In severe cold weather and during blizzard conditions, eave inlets can be partially closed to reduce airflow and the amount of snow blowing into the barn. The minimum inlet opening during severe cold weather is one-half inch for each 10 feet of building width. (There should be an inlet on each long side of the building.) When normal winter weather conditions return, eave inlets should be reopened to the standard one inch per 10 feet of building width on both sides of the building. Of course, eave inlet adjustments are much easier if the inlets have been designed to be adjusted. Boards on hinges are the most common type of adjustable eave inlet.

Drafts should be minimized to provide a dry, draft-free resting area. Drafty conditions can be reduced at cow level by patching curtain holes, minimizing gaps at the ends of curtains, and sealing around doors to eliminate small gaps where the wind blows through.

Avoid the temptation to try to keep uninsulated, naturally ventilated free-stall barns too warm. They were designed to be cold and dairy cows do quite well in cold temperatures when they are dry and properly fed and watered.

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