

Montgomery Co. dairy ventilation seminar

# Keep cow cool, comfortable and content

BY DONNA TOMMELLEO  
FRANCONIA — It's no secret that Pennsylvania dairy farms are diminishing in number but growing larger in size.

The old bank barn that comfortably housed the 30-head milking string can turn into a disease-laden environment if more cattle have been added without proper ventilation.

To point out the benefits of adequate ventilation, Dan Meyer, Penn State Extension agriculture engineer, spoke before a group of southeastern Pennsylvania dairy farmers on Thursday in Montgomery County.

"I don't think you can get enough air flow in a barn," he stated.

In the past 18 months, Meyer has visited more than 200 barns in the state. The ag engineer explained that in operations experiencing problems, inadequate ventilation was the cause about 80 percent of the time.

With several brand name systems on the market, Meyer offered some advice when choosing the correct system to fit the farmer's needs.

"Shop around, look for the best deal and stay away from automated systems," Meyer cautioned. Instead, he suggested that farmers choose the system that they could easily adjust and repair if necessary.

Before purchasing a system, Meyer stressed the importance of understanding the basic principles of ventilation.

An adequate system, either mechanical or natural, should provide oxygen, remove moisture and odors, prevent heat buildup and dilute air-contained disease organisms.

Respiratory diseases go hand-in-hand with poor ventilation, said Meyer. He cited the case of one dairy farmer that had treated nine cows for pneumonia before changing his system.

The biggest difficulties occur in barns where young stock are housed with older animals. He cautioned that young animals are targets if circulating air passes

from the older animals to them. Even outside, said Meyer, a farmer has to be aware of exhaust fan placements. An exhaust fan blowing directly on a calf hutch, not only dumps off organisms but warm air as well. The warm air condenses on the calf causing moisture which chills the young animal.

If at all possible, said Meyer, the best way to raise young animals is to get them outside. But for those farmers with limited space, mechanical systems may be the answer.

Meyer explained that a mechanical system generally costs more to install and operate daily, than natural ventilation.

A mechanical system consists of one or more fans, thermostats and a series of inlets. It is used where control of room temperature and air movement is a must.

The primary disadvantage of mechanical ventilation are cost, both initial and daily operating costs. Also, supplemental heat may be needed if the animals do not produce enough body heat in the winter, due to their heat being lost through the ventilation system.

"But you can't afford not to have it," Meyer stressed.

The optimum temperature range for dairy cows is between 40 and 50 degrees Fahrenheit, said Meyer. The combination of that temperature and a maximum relative humidity of about 70 percent accounts for barn-full of contented creatures.

If constant room temperature is to be maintained, the heat produced by animals, supplemental space heaters and creep heaters must equal the total heat lost through the building walls, ceiling and floor and through the ventilation system.

Relative humidity is the amount of water vapor in the air compared to the amount the air could carry if saturated. Relative humidity is important considerations in confinement livestock housing for various reasons.

—A relative humidity of 50 to 80

percent is detrimental to the airborne bacteria found in livestock buildings.

—Both very high and very low RH can lead to respiratory ailments.

—Moisture levels higher than 80 percent are conducive to survival of bacteria and spread of disease.

—High humidity also contributes to a rapid deterioration of building and equipment.

Waterers, feed, manure pits, wet surfaces of floor, gutters and tree-stall alleys and water vapor from the animals' lungs and skin all

contribute to moisture in the air.

Meyer reported that as much as 10 percent production increase in the summer is possible with the correct system. He said that many farmers, with installed systems, have reported that conception rate, which usually dips in the hot humid weather, equalled that of the winter months.

But for the farmer that has the space to raise most young stock outdoors, a natural ventilation system may be the answer.

"Take advantage of all that free air movement in the barn,"

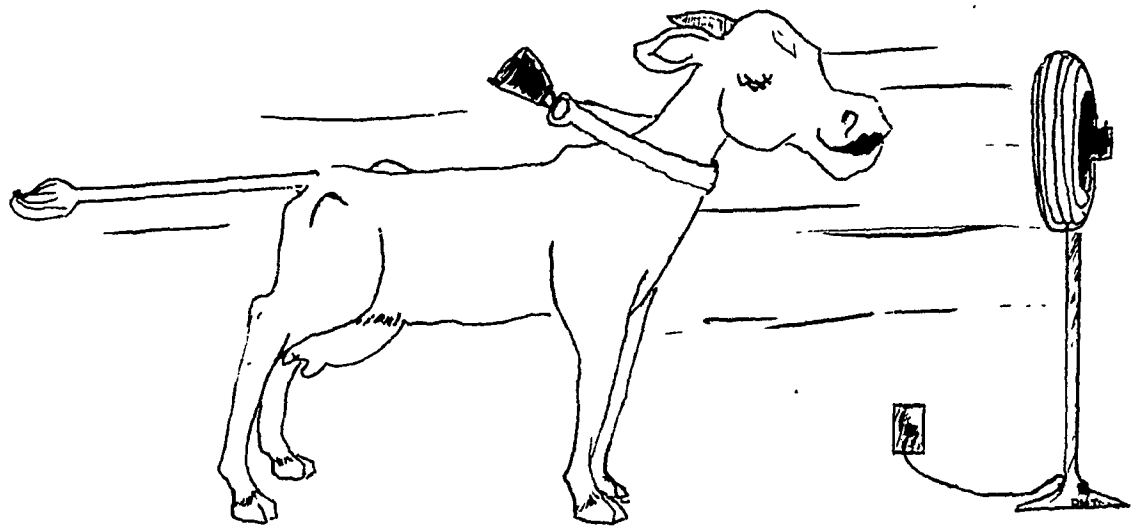
suggested Meyer.

Natural ventilation, however, cannot adequately insure an environmentally controlled atmosphere, since inside temperatures and air exchange rate fluctuate with outside changes in temperatures and wind conditions.

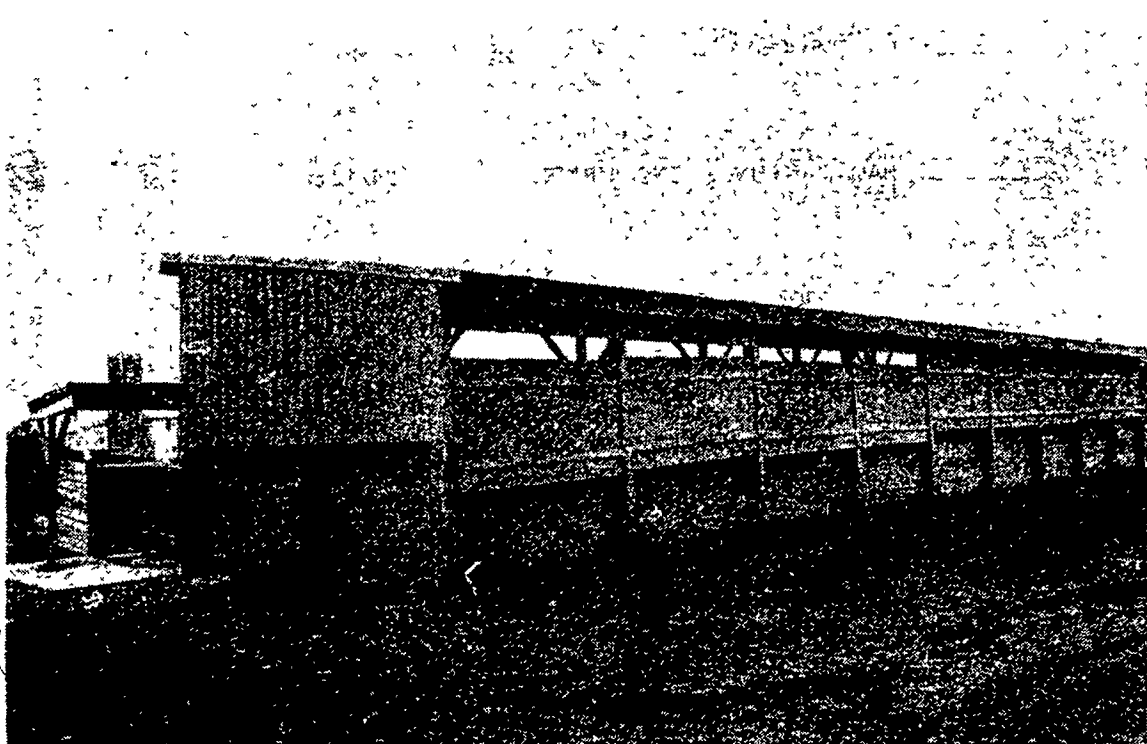
Its use in confinement livestock production, therefore, is limited to large animal housing, usually through sidewall openings.

"A calf hutch is the simplest form of natural ventilation," noted Meyer.

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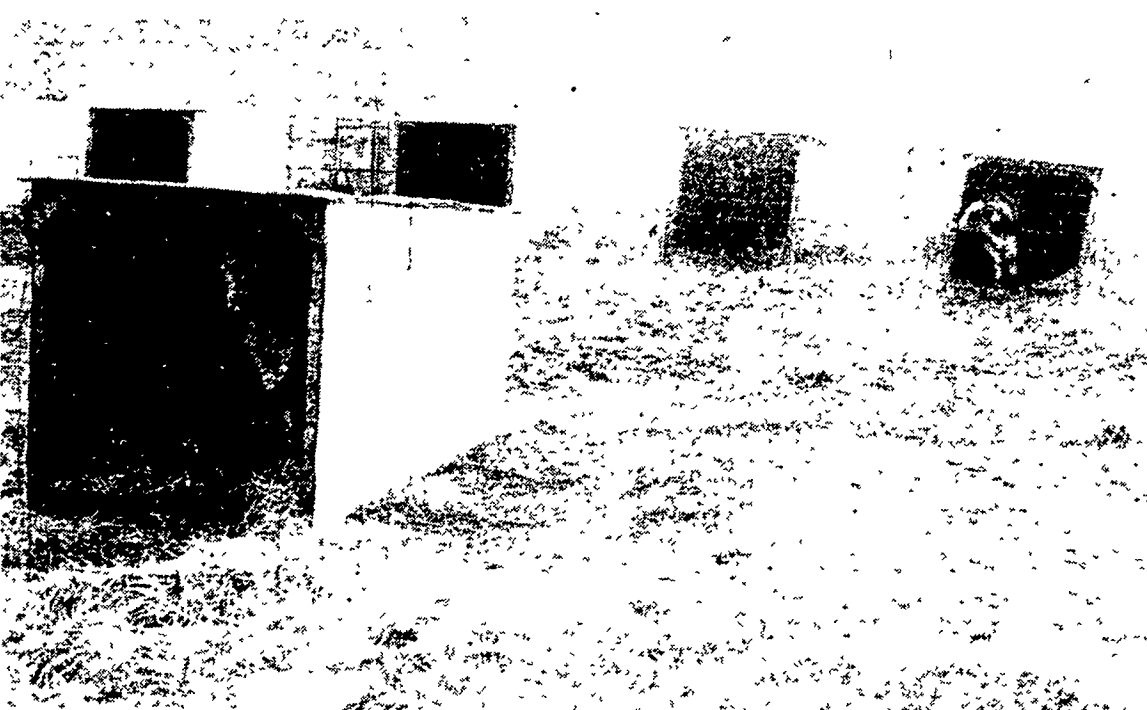


"This sure beats a barn full of swishing tails"



The VPI heifer barn design is becoming more popular for Pennsylvania farmers, says Meyer. The combination of the open front and the

continuous drop flaps in the back allows for a continual air exchange.



"Calf hutches are the simplest form of natural ventilation," says Penn State Extension agriculture engineer Dan Meyer.

Calves have the option of staying inside during inclement weather or basking in warm sunshine on nice days.



Dan Meyer, right, Extension ag engineer, advises Obelisk dairyman Jack Seasholtz on the plans for Seasholtz's new pole barn. Meyer presented an all-day dairy ventilation seminar in Montgomery Co. on Thursday.