

Season 2, Episode 2: The Importance of Ventilation

Dr. Brett Ramirez, Iowa State University, and Dr. Fernando Gomez, PIC, discuss the importance of ventilation in swine operations.



Environmental management

Ventilation utilizes air replacement rate to inject fresh air into the system while removing humidity and gases. These concepts contribute to maintaining an ideal environment and temperature. Ultimately, we should target a pig's thermoneutral zone, where the animals are most comfortable. Temperature ranges outside of the thermoneutral zone result in either cold stress or heat stress. Pigs will consume more feed as a result of cold stress and less feed as a result of heat stress.

Why ventilate?

Ventilation is important in maintaining optimal animal and worker health. In the winter, the goal is to keep heat in while using ventilation to remove humidity and control noxious gases. During the summer, ventilation is used to move air and create a cooling system. Whenever a new facility is built or an older facility is renovated, ventilation planning should be at the forefront of the project. Consider ventilation during the design, construction, installation, and commissioning phases. To efficiently manage ventilation, make sure you know your equipment and establish clear goals. For example, humidity should be maintained at less than 65%. There are several tools available to measure humidity, temperature, gas and airspeed. A [Kestrel 3000](#) is one example of a measurement tool available on the market today.

Animal health

Herd health can be impacted positively or negatively by ventilation. Higher humidity levels result in increased levels of bacteria, fungi, and viral load. Dust and gas concentrations can also influence animal health. During PEDV challenges, increased ventilation and use of heat sources can be used to dry slats. Adequate ventilation is also important for pre-weaning survivability. During farrowing, a sow that is experiencing heat stress is more likely to move around, increasing the likelihood of piglets being crushed. Heating pads should be used during farrowing to provide a warmer micro-climate for piglets.

Overcoming challenges

Some of the challenges seen with ventilation systems include inadequate insulation, inability to maintain static pressure, improper settings on controllers, and over or under sized equipment. Cold weather ventilation can be especially challenging. Key considerations for cold weather ventilation success are having a barn that is tight, with minimum air leakage, to help maintain static pressure. As well as getting proper air speed at the inlets for mixing of fresh air. Keep in mind, as genetics have evolved, the pigs we are marketing today are different from years past. They are growing to heavier weights and therefore producing more heat. Proper ventilation is not something you can set and forget. It requires diligent monitoring and should be inspected daily.

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