



CLIPPINGS a weekly column from Iowa State University Extension and Outreach

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For Immediate Release

Winterizing Your Ventilation Systems

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Now is the time of year to make sure our swine buildings and ventilation systems are set for winter. Winter is the time when it is most challenging to ventilate a building correctly. The colder air brought in is heavier than the warm air inside a building and will drop rapidly on the pig living area if the ventilation is not working properly. The only way to avoid stressing pigs with cold air is to drop the air in an area where pigs are not living or to set the inlets to increase air velocity, so the cold air is shot out of the inlets fast enough to prevent it from dropping too fast. This air speed can be measured by how far the air travels over time, typically the measurement is feet per minute. Air speed at the inlet to minimize the dropping of cold air onto the pigs is about 800 to 1000 feet per minute. There is equipment available that can measure air speed at the inlet in a swine barn.

Allowing air to drop is not a good idea for several reasons. Most importantly, cold air dropping on pigs will stress them and could lead to sickness. Dropping cold air will not mix well, resulting in warm stale air pockets not mixed with cold fresh air. Warm stale air will stress the pig as well, especially the respiratory system increasing the likelihood of respiratory disease. The third bad thing that happens is heavy cold air drops into the pit below the pigs, potentially forcing up the stale air from under the slats. This could also be harmful to the health of the pigs.

Winter is a time when high air velocity at the inlets is most critical, but also the time when incoming air volume is very low, making it tough to achieve the inlet air speed (velocity) that we want (800 to 1000 feet per minute). Increasing the volume of air to reach the desired velocity is not a good idea either because bringing in extra cold air is expensive to heat and a waste of energy.

It is critically important to prepare for winter. Fans need to operate at peak performance which means they should be clean. A dirty fan blade could cost you up to 40 percent efficiency. Dirty shutters cause the same efficiency problems. Make sure the discharge cones are in good repair. You need the cone to protect the fan operation on a windy day blowing at the fan. If fans have belts, make sure the belts are tight. And cover unused fans during the winter.

Inlets should be in good working order, open uniformly and calibrated correctly for each fan stage.

Ventilation systems typically are negative pressure systems. The fan pulls a vacuum inside the building forcing the air through the inlets (remember we want air speed at 800 to 1000 feet per minute). Any

leaks in the shell of the building will short-circuit the fresh air, lowering the amount of air pulled through the inlets (this causes the problem of cold air dropping and not mixing).

To solve this problem, the building should be air tight. Pumping ports should be sealed air-tight. Make sure there are no sags, gaps or holes in the curtains. Maintain at least 3-inch curtain overlap for a solid seal and make sure the end pockets are in good repair. The door seals should be maintained for minimum air flow through or under the door.

Occasionally, ventilation workshops are offered or scheduled through ISU Extension and Outreach. The workshops provide more in-depth information regarding ventilation issues and management adjustments needed to keep pigs healthy using less energy cost. For more information on these, check with Dave Stender, swine specialist with ISU Extension and Outreach.

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