



Pig Improver

PIC®

Beat the Heat: Follow 3 Ventilation Basics to Improve Production

Pigs share some common traits with people. They like their surroundings to be comfortable, especially when it gets hot outside. While people can sweat, pigs can't.

Pigs' inability to cool themselves easily can cause heat stress, which leads to lower feed intake and reduced growth rates. During the third quarter (July – September), the average market weight in the US is more than 4 pounds lower, compared to swine market weights rest of the year. This represents a weight loss of 1.6%.

To protect pigs' health and comfort, it's essential to maintain the proper [thermoneutral zone](#). The thermoneutral zone is the temperature range where pigs are most comfortable and don't have to convert energy/calories to stay warm. This allows them to efficiently convert nutrition into lean tissue.

When pigs are in this zone, they can maximize performance, including lean tissue growth. Proper ventilation is key.

1. Go with the flow.

Air movement (convection) is one of four ways pigs stay cool. Proper ventilation management is essential to improve convection. Let's review the basics of ventilation in a modern hog barn. Fans create a static pressure difference from inside and outside the barn. First, fresh air is pulled through the soffit or tunnel curtain into the attic space or directly into the barn. From there, air is distributed throughout the room from the curtain or inlets. This allows fresh air to mix with the existing air and exhaust dust, gases and humidity. As the air mixes and moves across the pigs' backs, this creates a wind-chill effect that helps cool pigs. This is dependent on the temperature difference between the air and the pigs' skin. In other words, this is convection at work.

To keep the ventilation system working properly:

- Clean and repair fans. Dirty louvers and fan blades may decrease fan efficiency as much as 30%.
- Remove dirt from soffits, so the debris doesn't restrict proper air flow.
- Review and know the correct curtains and inlet openings. Make sure inlets open and close properly to keep hot attic air from pouring in. Also, excessive static pressure (>1000 feet per minute of air speed, or 0.1 inches of water) could severely impact a fan's exhaustive CFM (cubic feet per minute) rating.
- Clean and adequately place probes. For the most accurate readings, place probes at pig level, out of the direct path of inlets.
- Inspect and maintain fan belts. Slipping fan belts decrease rotations per minute (RPM), resulting in reduced exhaustive output. Use an infrared thermometer to check temperatures. If the pulley is 7 degrees F more than the actual room temperature, the belt can start slipping and should be immediately corrected.

- Check the curtains to ensure they're operational and allow the correct airspeed during each tunnel stage. Grease curtain controllers and pulleys, as needed.
- Review the summer setpoint. For finishing pigs, consider a set point of at least 1-2°F lower than the desired room temperature (DRT). Decrease temperature bandwidth on the controllers to ~1°F.
- Know the right rate. Acceptable air exchange in tunnel ventilated barns is 30 to 40 seconds, with a standard velocity of 300 to 400 feet per minute (FPM), measured in the center of the barn. If your farm doesn't have tunnel ventilation, target a standard of 120 to 150 CFM per finishing pig.
- Increase CFM output, when possible. Consider adding fan cones to improve the fan's CFM output by 10% to 20%.

2. Chill out.

A second way that pigs can stay cool involves evaporation, specifically water drying on the skin. To increase evaporation, it's important to optimize settings for sprinklers.

- You want the water to make contact with the pigs' skin, instead of getting trapped on the hairs above the skin's surface. To ensure skin contact, you need large water droplets. Sprinklers create bigger droplets and are the most suitable for summer conditions.
- Set sprinkler timers correctly. Turn on the system until pigs become wet. Allow all pigs to dry so evaporation cooling occurs before misting/sprinkling again.
- Use one spray tip per 20 to 30 pigs to avoid piling or fighting, wetting no more than roughly 60% of the pen floor.
- For finishing pigs, target sprinklers activation at approximately 16-20°F above set point for the cooling system.

3. Breathe easy.

Respiration (breathing) and conduction (direct contact with cool surfaces) are two additional ways pigs stay cool. It's important to increase water availability and manage stocking density to help pigs beat the heat.

- Ensure sufficient water access (10-12 pigs/drinker) and water flow rate (1 liter per minute) to achieve proper water consumption and allow pigs to increase respiration.
- Increase cleaning frequency for bowl waterers. Watch for pigs resting on or around the waterers. Ensure the water sources are always clean and reachable.
- Consider adding more cups or nipple waterers. If you're using wet-dry feeders, add supplementary water sources when pigs weigh more than 180 pounds, and the outside temperature is greater than 85 degrees F. This is especially important in high stocking-density scenarios.
- Provide adequate floor space to allow pigs to separate and dissipate heat by direct skin contact with the flooring. Separation also increases the surface area of evaporation on the skin.
- Make sure cooling pads are evenly distributed, have no dry spots and minimal scale buildup.
- Optimize density. Consider removing cull pigs early. Also, review the number of pigs per pen, and maximize space utilization throughout the barn.

Never Stop Improving

Want an easy way to keep track of all this? Contact your PIC team to receive the PIC Weekly Ventilation Checklist. PIC offers Summer and Winter Ventilation Checklists.

For more on ventilation:

- [Optimizing Ventilation in the Pig Barn: Why ventilation is so important and how to get it right.](#)
- [Getting it Right: Temperature and ventilation](#)
- [Ventiation Air Exchange: Is your air exchange promotiong maximum herd productivity?](#)
- [Is Your Math Correct? Calculating the right air exchange to maximize your herd](#)
- [Troubleshooting Ventilation Problems: Pinpoint challenges and find solutions.](#)