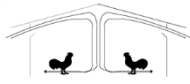




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Poultry Housing Tips

10 Simple Steps for Effective Negative Pressure Ventilation

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Using the concept of negative pressure to ventilate a broiler house during cold weather is easier than many people think. The only things a grower needs are a few fans to exhaust stale air, some adjustable inlets for fresh air to enter through and a \$25 static pressure meter (see Negative Pressure Ventilation - The Basics October/November, 1991). Once a grower has these items all he needs to do is follow these 10 steps:

- 1) Clean fan shutters and tighten belts.
- 2) Tighten up the house. Check to see if...
 - a) side wall curtains seal tightly against the side of the house.
 - b) cracks around doors and shutters are sealed.
 - c) holes in ceiling insulation are patched.

(For more house tightening tips see Poultry House Tightness, January 1992; Side Wall Curtains and Air Leakage, October 1992.)

- 3) Open one 4' side wall inlet (approximately three inches) every 40' along the south side of the house. These inlets will remain open at all times even if the house has an inlet machine.
- 4) Synchronize side wall timer fans so that they will all come on at the same time.
- 5) Turn on two 36" timer fans. Ideally, timer fans nearest the end walls should be used to help pull heat into these areas.
- 6) Measure static pressure.
 - a) If below 0.05", turn on another 36" fan or tighten up the house.
 - b) If above 0.10", open a few more inlets.

If the pressure remains below 0.05" with three fans running, either the house is too loose or the fans are not moving the air they should. You must determine which is the case and remedy the problem.

As a temporary solution, the inlets may be shut and stirring fans used to help the air coming in the cracks of the house mix with the warmer air in the house. The fans should be placed on a timer (see Negative Pressure Ventilation - Air Inlets, December 1992).

If you do not have a static pressure meter, a piece of yarn or cassette tape can help you determine whether your pressure is right. Hang a 6" piece of yarn or cassette tape from the ceiling in front of one of the inlets approximately 10' from the side wall. If the pressure is between 0.05" and 0.10", the tape should be blown at about a 45 degree angle. If the tape doesn't move, the pressure is too low. If it is blown nearly parallel to the ceiling, the pressure may be too high.

7) Set the timers on the fans according to the chart below.

Timer Fan Settings		
Bird Age	Two 36" timer fans (minutes on out of 10)	Three 36" timer fans (minutes on out of 10)
1	1	1
2	1.5	1.25
3	2.5	1.75
4	4	2.75
5	5.5	3.75
6	6	4
7	7	4.75
8	8	5.25

8) Set timer fan thermostats two degrees above desired house temperature.

9) Set thermostats on two or three additional fans two degrees above the timer fan thermostat settings.

10) When more than the two or three timer fans are operating, additional inlets will need to be opened. Open enough inlets to keep the pressure between 0.05" and 0.10". This can be accomplished by placing the inlets on the north side of the house on a hand winch and adjusting it until the pressure falls back within the desired range. If the house has a static pressure controlled inlet machine this will be done automatically as more fans come on (see Negative Pressure Ventilation - Inlet Machines, January 1993).

The following steps may be required to fine tune the ventilation system:

1) As the birds get older you may find it better to use three fans on the timer as opposed to two. If you increase the number of fans, decrease the timers accordingly.

2) If a hot spot occurs, open another inlet in the area. Likewise, if there is a cold area in the house, you may want to close the inlet in that area.

3) Timer settings may need to be decreased if there is fresh litter in the house. If there is a high level of ammonia present, increase timer settings.

The ten steps listed above should help you to begin to use negative pressure ventilation to provide better air quality, improve temperature control and lower fuel usage. Every poultry house is a little different when it comes to ventilation; some houses may require minor additions to these ten steps.

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