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Cooperative Extension Service
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Poultry Housing Tips

Tunnel/Sidewall Inlet Broiler House Operation

Volume 9 Number 10 **August, 1997**

More and more poultry producers are building broiler houses that can be power-ventilated year round. The typical house has side wall inlets for use during cold or moderate weather and tunnel ventilation for warmer weather. The reason for this trend is to gain more control over the environment (i.e, temperature, air quality, light) and therefore, bird performance and health.

The question that many growers have concerning the new style housing is, "Now that I have the ability to control, how do I use it?". More specifically, "How many fans should I use and at what temperature? When should I switch to tunnel ventilation? When should I use my evaporative cooling system? And last but not least, how do the answers to these questions vary with bird age?

Power-Ventilated Broiler House Ventilation System Summertime Setup

Degrees Above Target	***Weeks 2-3***	***Week 4***	***Week 5***	***Week 6***	***Week 7***	***Week 8***
+1°F (timer)	1 - 48" fan	2 - 48" fans	2 - 48" fans	2 - 48" fans	2 - 48" fans	2 - 48" fans
+3°F	1 - 48" fan	1 - 48" fan	1 - 48" fan	1 - 48" fan	1 - 48" fan	1 - 48" fan
+5°F	1 - 48" fan	1 - 48" fan	1 - 48" fan	1 - 48" fan	1 - 48" fan	1 - 48" fan
+8°F	tunnel	tunnel	tunnel	tunnel	tunnel	tunnel
+10°F	evap 1	1 - 48" fan	2 - 48" fans	2 - 48" fans	2 - 48" fans	2 - 48" fans
+12°F	evap 2	evap 1	evap 1	evap 1 1 - 48" fan	evap 1 1 - 48" fan	evap 1 2 - 48" fans
+14°F	2 - 48" fans	evap 2	evap 2	evap 2	evap 2 1 - 48" fan	evap 2
+16°F		2 - 48 fans	2 - 48" fans	1 48" fan		

Although the "best" way to operate a power-ventilated broiler house is still a matter for debate, the chart on the

preceding page provides one simplified method of operating a power-ventilated house during warm weather that has been proven to work fairly well. To avoid complication, 48" fans are used for minimum ventilation instead of sidewall 36" fans (for those that use 36" fans, two 36" fans equal one 48" fan). As house temperature rises, additional 48" fans are used to draw additional fresh air through the sidewall air inlets. When house temperature is eight degrees above desired, the tunnel curtain should be opened and side wall inlets closed. As house temperature continues to rise, additional fans are turned on and then the houses evaporative cooling system is used.

General comments on the use of the chart:

1) Exhaust fans and evaporative cooling settings are based on degrees above the desired house temperature. For instance, for a four week old bird and a desired temperature of 78°F, the tunnel curtain would be raised at 86°F (78° F + 8° F = 86°F), and the first stage of evaporative cooling would be set to come on at 90°F (78° F + 12° F = 90°F).

2) As the birds age, more and more fans are required to provide sufficient cooling. Using a large number of fans on smaller birds can cause excessive cooling and electricity usage. The exact number of fans required will depend on a variety of factors, including type of fans, house construction, bird density, etc. The grower should observe the birds and make the necessary adjustments.

3) One more fan than the age of the bird in weeks will provide approximately a 10°F windchill effect. So even though a thermometer may indicate a house temperature 10°F above desired, the effective temperature will be the same as the desired providing there is sufficient air movement. For instance, on a four-week-old bird, five 48" fans will be operating 10°F above target or at 88°F according to the chart. Since five fans will produce about 10°F windchill effect on a four week old bird, the effective temperature would be approximately 78°F.

4) Evap 1 denotes the first stage of evaporative cooling
   fogging system - 1/4 of the nozzles (Week 4 and below)
   - 1/2 of the nozzles (Week 5 +)
   fogging pad - one row of nozzles, line pressure (Week 4 and below)
   - two rows of nozzles, line pressure (Week 5+)

   Evap 2 denotes the second stage of evaporative cooling
   fogging system - an additional 1/4 of the nozzles (Week 4 and below)
   - second half of the nozzles (Week 5 +)
   fogging pad - one row of nozzles, high pressure (Week 4 and below)
   - two rows of nozzles, high pressure (Week 5+)

5) Fans set to come on after the evaporative cooling is activated are there for safety purposes. In most cases, they will not be turned on by their thermostats or controller.

6) Using a desired temperature below 70°F in conjunction with this chart can lead to evaporative cooling systems coming on prematurely, excessive electricity usage and cooler than desired effective house temperatures..

It is important to remember this chart provides a point from which to start. After watching the birds you may want to add a fan, make your evaporative cooling come on a little sooner, or adjust your desired temperature up or down.

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*Consult with your poultry company representative before making management changes.