



The University of Georgia  
Cooperative Extension Service

College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356



*Warm Weather  
"Rules of Thumb"*



Michael Czarick  
Extension Engineer

Michael Lacy  
Extension Poultry Scientist

May, 1992

**Air Movement:**

- 1) Air moving over a bird at 400 ft./min. will reduce effective house temperature by 10°F to 15°F.
- 2) With no air movement, relative humidity is more important than air temperature. With a little air movement, relative humidity is as important as air temperature. With high air movement, air temperature is more important than relative humidity.
- 3) Running fans at night will improve both bird weight and feed conversion during periods of heat stress.
- 4) Air movement is most effective when house temperatures are kept below 95°F.
- 5) In a tunnel-ventilated house with a drop ceiling, air velocity 5' above the floor in the center of the house should be at least 50 ft./min. per 48" fan operating.
- 6) It costs ten cents to run a 48" fan for an hour and five cents to run a 36" fan for an hour.
- 7) A 36" circulation fan will provide adequate air movement over an area of 45' X 16'.
- 8) The more a bird pants the worse its feed conversion will be.

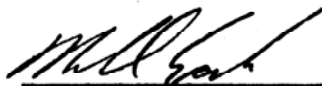
**Evaporative Cooling:**

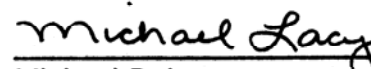
- 1) To decrease air temperature by 3.5°F, 5 gallons of water needs to be evaporated each hour for every 10,000 cfm of air exchange.
- 2) For every 3.5°F of cooling produced by an evaporative cooling system, house humidity will increase 10%.
- 3) Evaporative cooling systems should not operate between the hours of 10 pm and 10 am.
- 4) Fogging systems or evaporative cooling pads should not be used when the sum of outside temperature plus relative humidity is over 160.

- 5) Water temperature has practically no effect on the amount of cooling produced by either an evaporative cooling pad or misting system. Decreasing the temperature of the water by 10°F increases cooling by only 1%.
- 6) Evaporative cooling is most effective if there is good air movement.
- 7) A 1 gal./hr. nozzle will put out 1 1/2 gallons per hour at 200 psi.
- 8) The higher the water pressure, the finer the mist, and the greater the cooling produced.
- 9) The relative humidity in a poultry house should not exceed 80%.

**Maintenance:**

- 1) If the static pressure in a house with evaporative cooling pads is over 0.1", the pads require cleaning.
- 2) Bare ground next to a poultry house will be at least 30 degrees hotter than ground covered with grass.
- 3) If the static pressure in a tunnel-ventilated house with a fogging system exceeds .06", more inlet is required.
- 4) A tunnel-ventilated house with fogging nozzles should have a minimum of 40 ft<sup>2</sup> of opening per 48" fan.
- 5) Four times as much air will enter through a 1 square foot hole in the ceiling than through a 1 square foot section of evaporative cooling pad.
- 6) If you look through the blades of an operating circulation fan at another circulation fan, the blades of the second fan should appear to be frozen in place. If not, one of the two fans has a loose belt.
- 7) If the shutters on an exhaust fan do not open almost completely and the shutters are clean and the belt tight, more inlet is required or the evaporative cooling pads require cleaning.
- 8) In a house where severe migration has occurred, average bird weight will be decreased by 1/4 lb. to 1/3 lb.

  
\_\_\_\_\_  
Michael Czarick  
Extension Engineer  
(706) 542-3086

  
\_\_\_\_\_  
Michael P. Lacy  
Extension Poultry Scientist