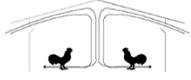




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Poultry Housing Tips

Volume 5 Number 2

Negative Pressure Ventilation - *electricity usage*

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Exhaust fans, although present in almost every poultry house, are often under-used. One of the most common arguments against using exhaust fans and for using side wall curtains is electricity usage. After all, curtain ventilation is "free" and fan ventilation costs money. Though it is true that producers who curtain ventilate their houses during cool weather will have lower electricity costs, the question is whether they really save a lot of money by doing so?

Running an exhaust fan during the winter may not cost as much as you think. A 36" fan (1/2 h.p.) costs approximately three cents per hour to operate and a 48" fan (1 h.p.) costs approximately six cents per hour (electricity cost of \$0.06/Kw*hr). During those portions of the day when exhaust fans are operating on timers, electricity usage is even less. Running four 36" fans, three minutes out of ten, costs less than a dollar a day. To put this in perspective, the light bulbs in a typical poultry house cost more than \$1.50 per day to operate.

When it comes to the bottom line, the cost of power ventilating a poultry house during cold weather is not that high. Field studies conducted over the last four years by The University of Georgia Cooperative Extension Service have shown total electricity costs (lights, feeders, and fans) of a power-ventilated broiler house average between \$100 and \$150 per growout during the winter months. Electricity usage in curtain-ventilated houses, using timer fans occasionally, may average 50% less, a savings of only \$50 to \$75. This is not to say that \$75 is not worth saving; it is, but often production is sacrificed to obtain this savings.

Power ventilation enables a producer to provide a more consistent house environment, both in terms of house temperature and air quality. Timers on exhaust fans ensure that just enough air is brought in to remove excess moisture and ammonia while providing oxygen for the birds without causing excessive fuel usage. This is very difficult to do with sidewall curtains. The combination of exhaust fans and air inlets helps mix the cold incoming air with the warm air near the ceiling, minimizing fuel usage and bird chilling. In addition, as the house temperature increases, additional exhaust fans can come on, bringing in just enough air to cool things off without over-cooling. All this takes place automatically without the grower present.

Figure #1 is a graph of inside and outside temperatures for a power-ventilated house during February and March. As you can see, house temperature is very consistent throughout the entire growout. Temperature starts at about 90°F, steadily decreases throughout the 42-day growout and is little affected by wide-ranging outside conditions. Figure #2 illustrates the daily electricity usage for the same house during the same period. Daily electricity costs ranged from \$3 to \$6 depending on outside temperature, lighting level, and whether the birds were in half house. The high electricity usage during the first seven days was primarily due to the fact the grower was using 100 watt bulbs at full intensity during this period. The total electricity usage for the entire growout was approximately \$150. (As a point of interest, this grower finished #1 for his settlement period.)

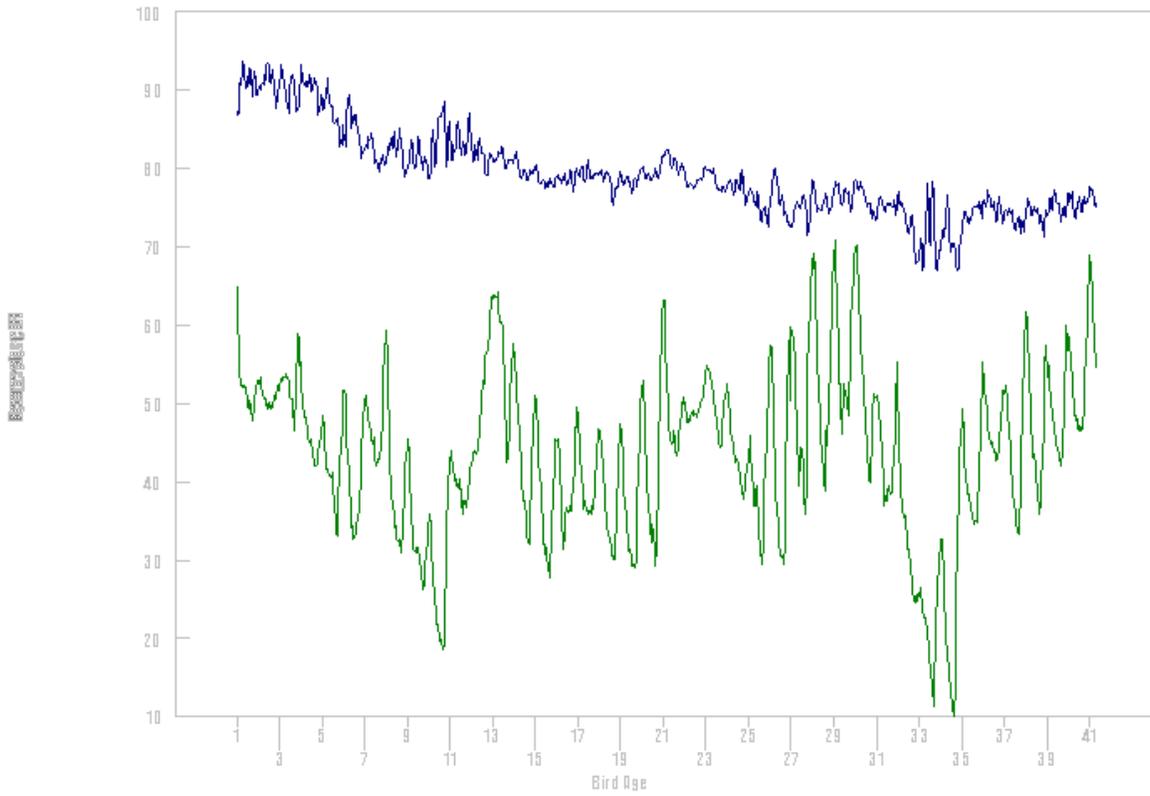
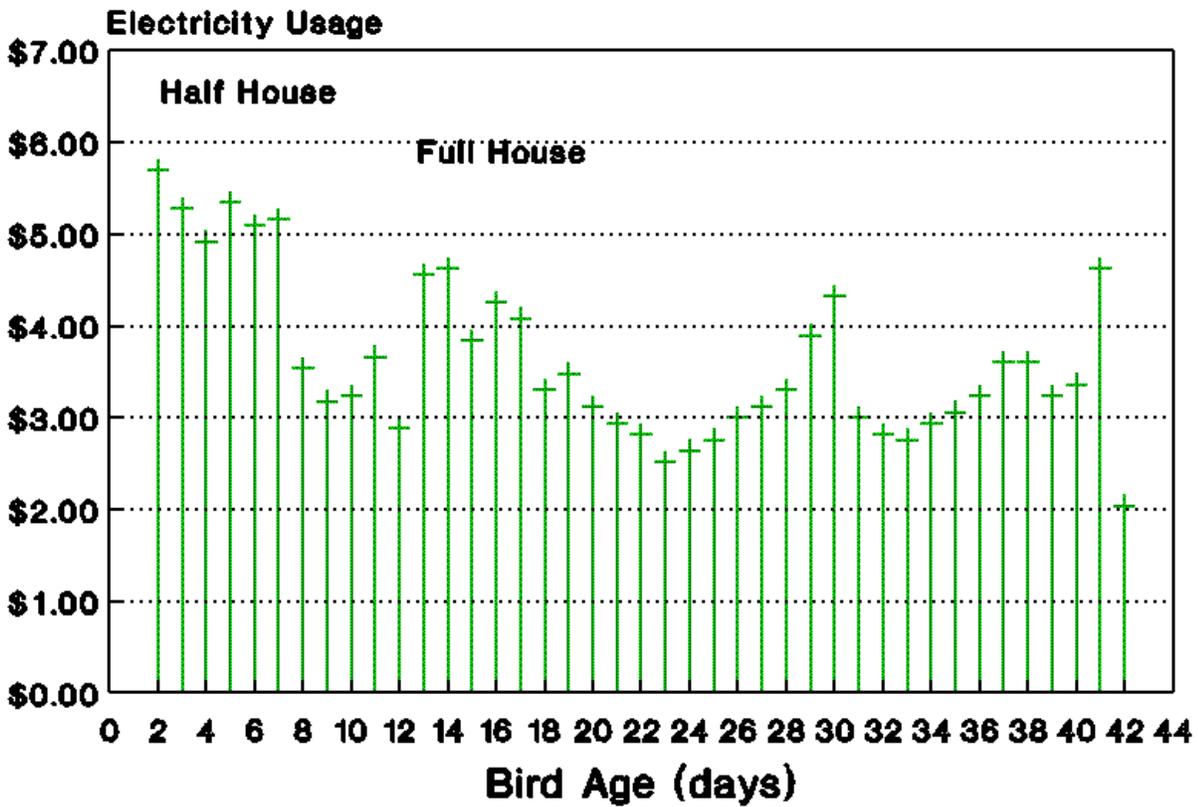


Figure 1
Inside and Outside Air Temperatures



Electricity cost = \$0.08/Kw•hr

Figure 2
Daily Electricity Usage

It is important to keep in mind that although power ventilation will increase electricity costs, increased performance in most cases offsets it. Just one point in improved feed conversion can more than pay for the additional electricity usage.

Minimizing electricity usage is important to a grower's bottom line. Some ways of reducing electricity usage are better than others. The key is to concentrate on those areas that will not have an adverse effect on bird performance. Examples of these include the following:

- 1) Using compact fluorescent lights.
- 2) Keeping fan shutters clean and belts tight.
- 3) Replacing burned-out motors with energy efficient motors.
- 4) Making sure exhaust fans fit tightly in the side wall.
- 5) Purchasing energy efficient fan models when replacing or adding to your ventilation system.

Producers who concentrate on these areas, instead of shutting off fans, find that they can minimize electricity usage and improve bird performance.

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