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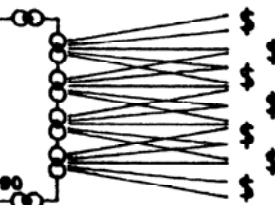
Tunnel Ventilation vs. Natural Ventilation with Mixing Fans

ELECTRICITY USAGE

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High Electricity usage is one of the major problems associated with growing birds during warm weather. With nearly a dozen or so circulation fans running 18 or more hours a day, it doesn't take long for electricity bills to take a substantial chunk out of a producer's profits. With the trend towards tunnel-ventilated houses, this problem is becoming of even greater concern for many producers. The thought of seven or more 48", 1 hp fans running nearly all day can be very discomfoting.

Over the past few months Extension Engineers and Poultry Scientists at the University of Georgia have been studying summertime electricity usage in both conventional curtain-sided houses and tunnel-ventilated houses. The objective of the study was to see how electricity consumption varied between the two types of housing and to examine what factors affected use.

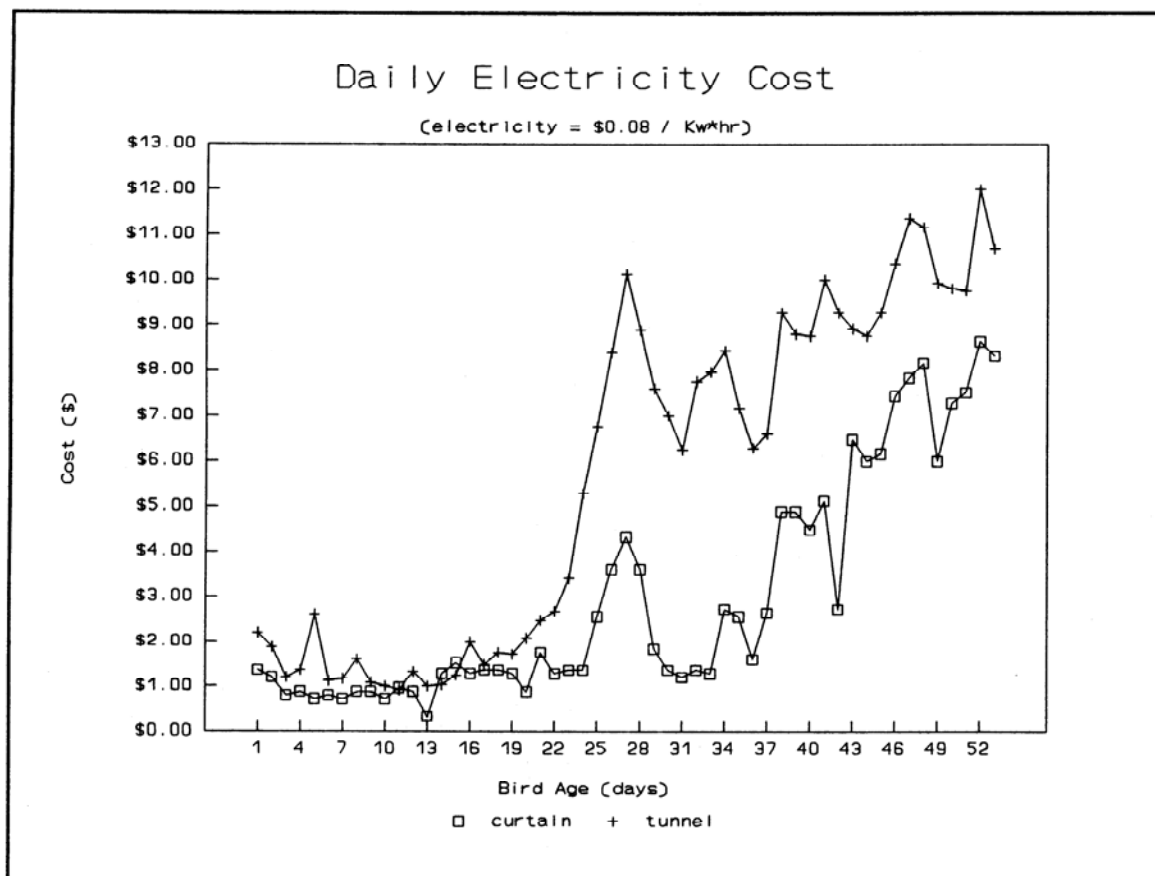
The study was conducted on a commercial broiler farm with two tunnel-ventilated houses and one curtain-sided house. The houses were 36' X 400' and had drop ceilings. The two tunnel-ventilated houses had seven-48" exhaust fans or the equivalent. The naturally-ventilated house had eleven-36" circulation fans. Birds were placed in the houses on June 14, 1990. The tunnel-ventilated houses were naturally-ventilated the first three weeks of production.

Over the course of the 54-day grow-out, the tunnel-ventilated houses used approximately twice the amount of electricity than the conventional curtain-sided house. The difference in electricity usage between the houses varied from day to day. On hot days the difference in electricity usage was as little as 20 percent, while on relatively cool days the tunnel-ventilated houses used three times as much energy as the conventional curtain-sided house.

The large difference in electricity usage on relatively cool days was related to the fact that fans in the curtain-sided house only came on for a short time during the hottest period of the day. In the tunnel-ventilated houses at least two-48" fans ran continually, with four to six fans operating during the warmest time of the day. In contrast, on hot days nearly all the fans in both types of houses ran throughout the day and well into the night leading to high electricity usage for both.

The large increase in electricity usage in the tunnel-ventilated houses could have been decreased to some extent by management. In this study the tunnel-ventilated houses were not naturally-ventilated after the third week of production. There were a number of days as well as nights where it would have been possible to go to natural ventilation and production probably would not have been affected. This would have reduced electricity consumption in the tunnel-ventilated houses to some extent.

PUTTING KNOWLEDGE TO WORK



It is very important to note that owners of tunnel-ventilated houses should not try to skimp too much on electricity usage. The advantages associated with tunnel-ventilation will only be realized if used sufficiently. You must keep in mind that tunnel-ventilation is not only a way of keeping birds alive during hot weather, but also a method of minimizing drops in production caused by hot weather.

Listed below are some suggestions as to when to use tunnel-ventilation:

- 1) Begin tunnel-ventilation after the birds are four weeks of age, unless extreme hot weather occurs during the third week.
- 2) Do not tunnel ventilate with less than three 48" fans.
- 3) Don't switch back to natural ventilation unless temperatures are expected to go below 75°F and there will be a breeze present.
- 4) Tunnel ventilate 24 hours a day during the last week of production.
- 5) Experiment with using the fogging systems with fewer fans. Instead of running seven fans with the foggers try using five or six.