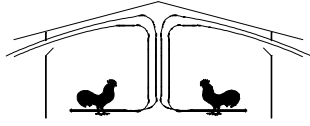




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## *Poultry Housing Tips*

### **Black Evaporative Cooling Pads and Fans**

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With more and more producers building or retrofitting to black curtain houses there is a significant amount of interest in getting the areas near the evaporative cooling pads and tunnel fans darker. The light entering a house through evaporative cooling pads and exhaust fans can result in these areas of the house being 10 to 100 times brighter than the remainder of the house. The higher light intensities near the pads and fans lead to a significant increase in bird activity in these areas of the house which of course is something producers are trying to limit in these houses in the first place.

The question is how do we make it darker? First, keep in mind that anything that restricts light from entering a house also limits air. Placing shade structures in front of evaporative cooling pads or behind tunnel fans to reduce the amount of light entering the house will also increase static pressure which will reduce the amount of air coming in the house and reduce your ability to cool the birds during hot weather. Light traps can do a good job of eliminating light but they too reduce the air moving capacity of the fans and could easily add ten to twenty thousand dollars to the price of a house.

What about more simplistic measures? For example, installing black evaporative cooling pads and or fans to reduce the amount of reflective light entering the house. A number of equipment companies are now starting to market black pads and fans. But do they work?

*Black Pads:*

One pad manufacture is selling an evaporative cooling pad which is impregnated with black resins making the pad appear as if it is made of black paper. This should not be confused with the pads with black surface coatings which are only black and inch or less on the outside surface of the pad. The coatings are primarily intended to strengthen and/or inhibit algae growth on the surface of the pad not to make it darker. As part of a long term study of pad life and cooling effectiveness presently being conducted on a contract broiler grower's farm, we have had an opportunity to compare the black pad's ability to restrict light versus black coated and conventional uncoated pads (Figure 1).



Figure 1. Different types of pads. The light pads on the left are the StayCool® (far left) and Glacier-Cor® (left) with surface coating. The dark pads in the center are Kuul® (left center) and Munters® pads (right center) with surface coating. The gray section, toward the right, between the two black sections is the black Kuul® pad and the section of black pad at the far right is again the surface coated Munters® pad.

In June of this year five foot pad sections of five different types of six inch pads were installed on the northern side of 60' X 5' pad system. All the pad sections had 45 X 15 degree flute angles. In August, light measurements were taken at one inch from the inside and outside surfaces of the different pads. Light intensity measured at the outside surface of the pad was approximately 3500 ft\*candles. Light intensity measured at the inside surface of the pad can be seen in Table 1.

Evaporative Cooling Pad (45° X 15° flute angles)	Light Intensity (ft*candles)
StayCool® pad without coating	1.40
Kuul® black pad without surface coating	1.95
Conventional Kuul® with surface coating	1.75
Munters® with surface coating	1.31
Glacier-Cor® with surface coating	1.15

Though they all did a very good job of reducing light intensity it is interesting to note that the Kuul® black pad did a slightly poorer job of reducing light transmission. This is in part because light transmission has as much to do with the “shininess” of the paper as its color. The paper in the Kuul® pad tends to have more of a sheen to it than either the coarser Munters® or the Glacier-Cor® paper. This sheen allows slightly more light to be transmitted through the Kuul® pads than others. The Kuul® black pad was slightly brighter than the Kuul® coated pad because the surface coating was duller than the non coated paper pad. The other reason for the difference was probably due to the fact that the color of the pad had faded significantly over the two months since it was installed and was more gray than black. Since August the pad has faded even more and is now a light gray (Figure 2).

*Black Fans and Black Fan Shutters:*

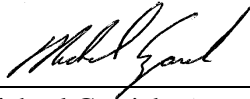
In an effort to reduce light transmission through fans, some companies are marketing black fans and/or shutters. Recently light measurements were taken on a farm which had both Choretime’s® black fiberglass fans with dark gray shutter and standard galvanized fans with white plastic shutters. The new broiler house in question had six of the black 48" fiberglass cone fans and two 48" galvanized fans. A light meter was placed on the floor in the center of the house approximately 15' from the tunnel fan end wall. Two of the black fiberglass fans were turned on (one on each side of the house ) and light intensity measured. The fiberglass fans were turned off and the two galvanized fans (one on each side wall) were then turned on and floor light intensity was again measured. Floor light intensity with the galvanized fans was approximately 2.5 ft\*candles while floor light intensity with the black fiberglass fans was decreased to approximately 1.5 ft\*candles, a 60% reduction.

Though the 60% reduction in light intensity was significant and noticeable there may not be a big difference in bird activity. Most producers with light control houses are running light intensities below 0.2 ft\*candles, with a significant percentage operating below a 0.1 ft\*candles. So with either type of fan the area near the tunnel fans will still be ten to twenty times brighter than in the remainder of the house. Birds in this area would still be more active than in the remainder of the house.

Short of putting light traps on fans, evaporative cooling pads, and side wall inlets, it is impossible to gain total control over light intensity in a broiler house. Nevertheless, there are things a producer can do to keep light levels to a minimum.

- 1) Curtain flaps can do a very good job of eliminating light leakage from side wall curtains.
- 2) Paint end walls flat black to reduce the amount of light entering through pads and fans that is reflected down the length of the house.
- 3) Place tunnel fans on in the side walls and not the end walls. Fans in the end wall of a house dramatically increase light levels in the end of the house where they are located.

- 4) If you have a “dog house” for your pads, painting the inside surfaces flat black will reduce the amount of light entering the house.



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