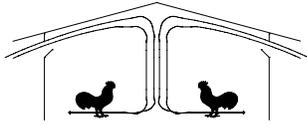




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# *Poultry Housing Tips*

## *Migration Barriers*

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Bird migration is a common frustration when it comes to managing tunnel-ventilated houses. Why do birds migrate towards the inlet end of tunnel-ventilated houses? It is not due to the fact that the incoming air is cooler, because birds will migrate in a tunnel-fog house where the air is typically hotter at the inlet end than at the fan end. It is not because it is darker or lighter at the inlet end, because birds will migrate in clear curtain houses with evaporative cooling pads where it is darker at the inlet and in a tunnel-fogging house equipped with dark curtains where it is brighter at the inlet end. Migration is simply the result of a bird's response to the consistent breeze that is generated in a tunnel house. The fact of the matter is that birds will also migrate in curtain-ventilated houses if there are a large number of circulation fans blowing air in one direction.



Figure 1. Plywood migration barrier

There is only one sure way to keep birds from migrating in tunnel-ventilated houses and that is the installation of migration barriers. Migration barriers act as barriers to bird migration by allowing only limited movement towards the tunnel curtain end of a house. The typical 400' to 500' long house should have a **minimum** of three migration barriers splitting the birds up into four sections.

There are a variety of migration barriers used in tunnel-ventilated houses. Though most do a good job of keeping the birds evenly distributed throughout a house, some types of barriers are better than others when it comes to keeping birds cool during hot weather. More specifically some barriers do a better job of keeping air moving over the birds than

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others during hot weather. Air movement is of course the key to keeping birds cool during hot weather. The problem is that the some migration barriers can deflect air off the floor and away from the birds leading to dead spots in the vicinity of the barrier.

Probably the worse type of migration barrier, though not widely used, would be those made out of plywood. Plywood barriers are sometimes seen at the brooding curtain where they are used during brooding to help seal the brooding curtain. The problem is that a plywood barrier deflects air away from the floor towards the ceiling creating a five to ten foot dead spot downwind of the barrier (Figure 2).

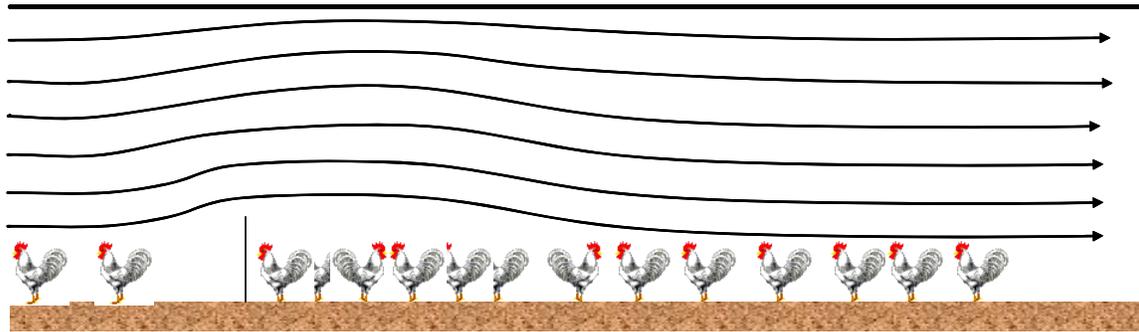


Figure 2. Air flow over a plywood migration barrier

The effect that this dead spot has on bird cooling can be seen in Figures 3 and 4. The thermal images clearly show that the birds directly behind the migration barriers are much hotter than those either upwind or those more than ten feet or so behind the migration barrier. Smoke tests confirmed the fact that the wind moving down the house was deflected off the floor by the plywood migration barrier.

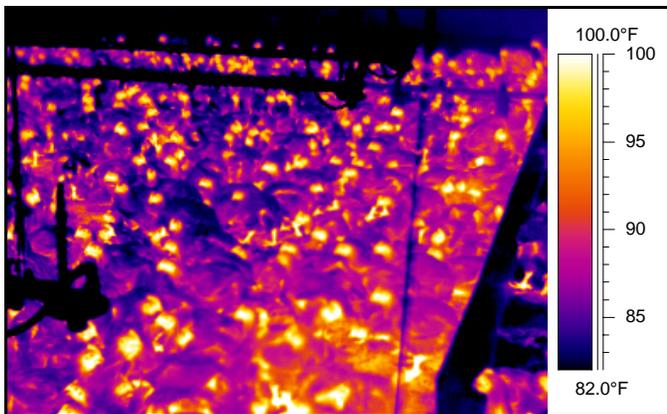


Figure 3. Thermal image of birds just downwind of a plywood migration barrier (air flow is from right to left).

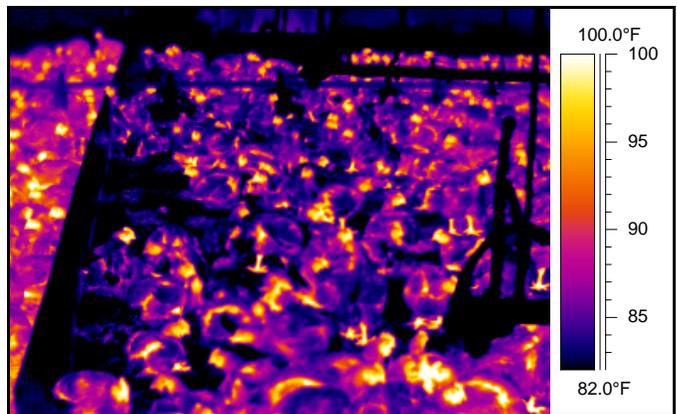


Figure 4. Thermal image of birds just upwind of a plywood migration barrier (air flow is from right to left).

This is not to say that all solid migration barriers will create this large of a dead spot. One example of a much less problematic solid migration barrier is a ten-inch plastic drainage pipe. The fact that the pipe is not that much taller than the birds helps to minimize the size of the dead spot. Furthermore, the rounded shape of the pipe tends to help pull the air back down to the floor after it passes over the crest of the pipe. Whereas, there tends to be a five to ten foot dead spot behind a 18" plywood migration barrier, the dead spot behind a ten-inch drainage pipe is typically only a foot or two in length (Figures 5 and 6).

When it comes to maximizing air flow moving over the birds the best migration barriers are those that allow air to freely flow through them. For instance, barriers constructed of wire shelving tend to have a minimum affect on air

movement and as a result do not tend to create dead spots in a house (Figures 7 and 8). It is important to note that barriers made of wire shelving or chicken wire may need to be cleaned from time to time so that they do not become clogged with feathers and end up deflecting air away from the birds much as a plywood migration barrier would.

Though wire shelving tends to be one of the better migration barrier options when it comes to air flow, they can be difficult to manage at times. First their higher height can be a little more difficult to step over than a ten-inch drainage pipe. More importantly when walking a house, birds tend to pile up against a migration barrier made of wire shelving whereas they will tend to move over the top of a migration barrier made of ten inch drainage pipe. In general, the wire shelving tends to be much less problematic in houses with fairly low lighting levels.



Figure 5. Ten-inch plastic drainage pipe migration barrier

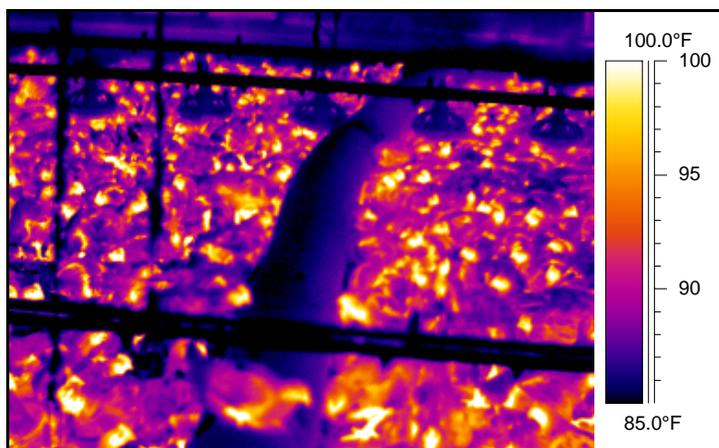


Figure 6. Thermal image of older birds near a ten-inch drainage pipe (air flow is left to right).



Figure 7. Migration barrier made of wire shelving.

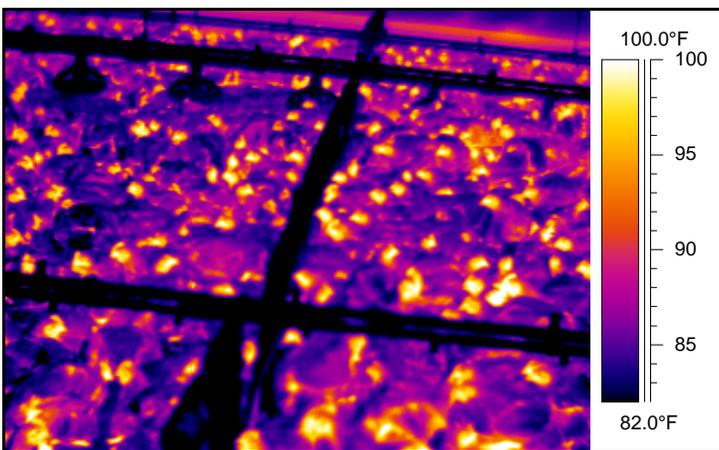


Figure 8. Thermal image of older birds near a wire shelving migration barrier (air flow is left to right).

Migration barriers are a necessity when it comes to tunnel-ventilated houses. Without barriers, bird weight decreases while heat stress related mortality and condemnations tend to increase. To minimize problems related to migration barriers keep the following points in mind:

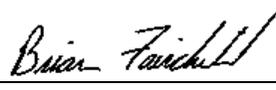
- 1) Make sure your barriers are not creating dead spots. Use some smoke emitters, air velocity meter, or simply put your hand to check the amount of air movement at bird level behind the migration barrier.

- 2) Try to keep the houses dark during hot weather to keep activity to a minimum. This will not only reduce heat production, but can also help to reduce the tendency for the birds to migrate.
- 3) Make sure migration barriers are installed as soon as possible
- 4) Make sure the birds are uniformly distributed before installing barriers.
- 5) Keep wire migration barriers clean.
- 6) Try not to turn up the lights very bright when walking the birds.



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