The University of Georgia
Cooperative Extension Service
College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356

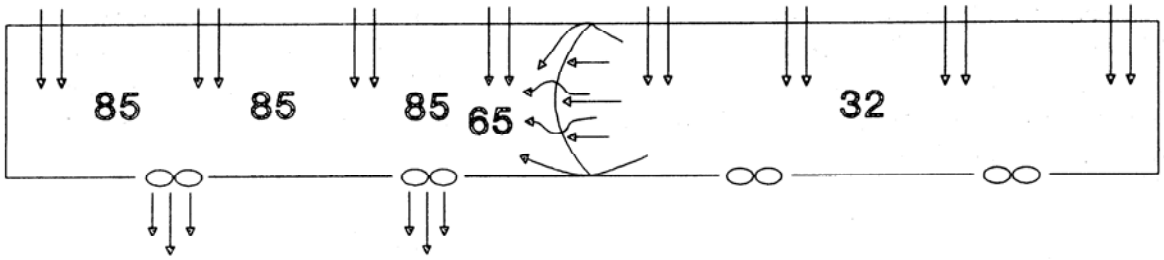
Half-House Brooding Ventilation

Michael Czarick
Extension Engineer

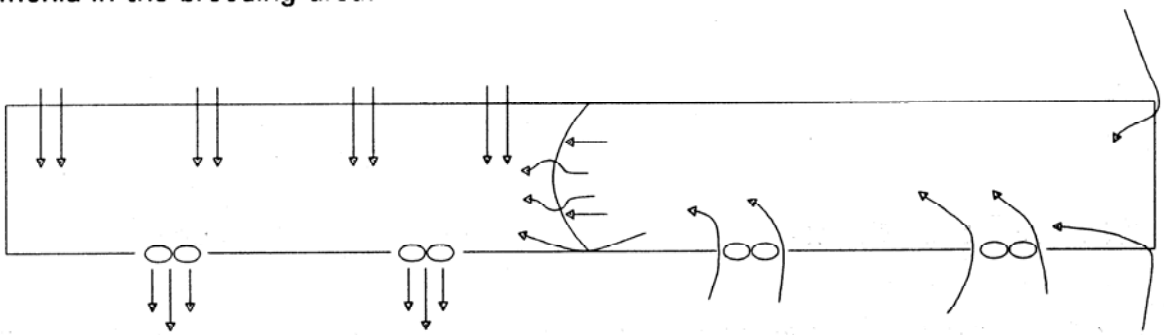
Michael Lacy
Extension Poultry Scientist

November, 1992

One of the greatest challenges for broiler growers who partial-house brood is getting an air-tight seal between the brooding and non-brooding ends of their houses. It seems no matter what is done, a large portion of the air that the exhaust fans bring in comes not from outside the house, but rather from the other side of the brooding curtain. This, of course, can create serious problems. First, since the heaters in the non-brooding end are not on, a large amount of cold air is brought into the area near the brooding curtain. This cold air leads to the chilling of the chicks and the caking of the litter near the curtain. Furthermore, if there is built-up litter in the non-brooding end, ammonia-laden air will be pulled from behind the brooding curtain into the brooding area.



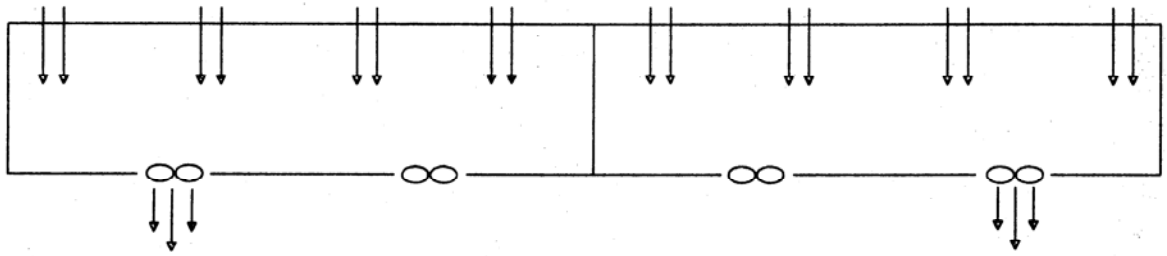
It is important to realize that even if there are no inlets open in the non-brooding end of the house, these problems still can occur because of leakage from around the fans, side-wall curtains, and doors. Even in cases where the non-brooding end is fairly tight, and the amount of air drawn through the brooding curtain minimal, the concentration of ammonia in this air can be extremely high due to the limited amount of fresh air entering the non-brooding end. The leakage of this air into the brooding area will often lead to unacceptable levels of ammonia in the brooding area.



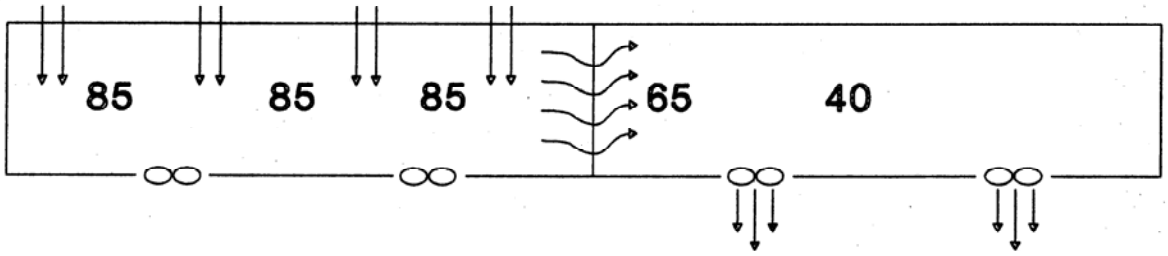
PUTTING KNOWLEDGE TO WORK

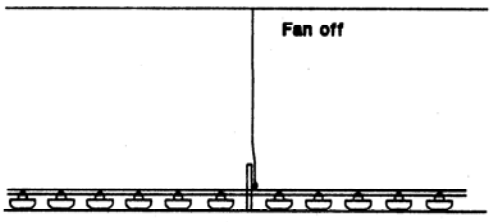
The net result of brooding curtain leakage is that running exhaust fans during partial-house brooding can sometimes actually increase the level of ammonia in the house, bird chilling, and caking near the brooding curtain. This doesn't mean exhaust fans shouldn't be used, but rather, they should be used in a slightly different way.

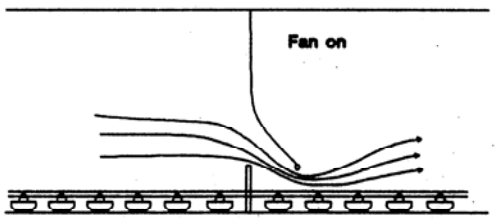
One solution to these problems is to set up the exhaust fans so that whenever a fan comes on in the brooding area one will come on in the non-brooding end of the house (i.e, synchronizing 10 minute timers) This helps equalize the pressure between the two ends of the house, minimizing air exchange between them. Its important that the same number of inlets are opened in each end of the house. If more inlets are open in the non-brooding end of the house than the brooding end, the fan in the brooding end will pull a significant portion of its air from the non-brooding end of the house.



Another method of partial-house ventilation involves using fans only in the non-brooding end of the house. In this system, fresh air enters through inlets in the brooding end of the house and then is pulled under the brooding curtain into the non-brooding end. This minimizes the flow of cold, stale air from the non-brooding end to the brooding end of the house as well as preheats the non-brooding end of the house, making it easier to move the birds to the rear of the house when the time comes.







This method of ventilation performs best in a fairly tight house with adjustable inlets. Pull up the brooding curtain to just above the feed lines on the non-brooding end of the house, leaving approximately a 1' overlap on the brooding boards. Hold the top half of the curtain in place

with cables leaving the bottom half free to move. Close all inlets in the non-brooding end of the house and open one inlet every 40' in the brooding end. Place two 36" fans or one 48" fan on a timer in the non-brooding end of the house. Ideally, the thermostats for the timer fans should be located in the brooding end of the house. Set thermostats for the fans in the brooding area (not on interval timers) so that they will come on if the brooding end of the house gets too warm.

If the house happens to have 48" fans for tunnel ventilation, one of them should be used instead of side wall fans. This will help pull warm air all the way to the rear of the house encouraging the birds to move to the feeder control pans when the house is opened up. In addition, it minimizes the problem of chilling birds sometimes caused by leakage around the tunnel-fan shutters since warm air is always being pulled into this area.

A tight house is necessary to take advantage of this ventilation method. To test whether a house is tight enough to be ventilated this way, open one inlet every 40' in the brooding end of the house, then turn on the fan(s) in the rear of the house and measure the static pressure in the brooding end. The desired range is between a 0.04" and a 0.08". If this static pressure cannot be obtained, try to tighten up the house. **If it is not possible to get the static pressure high enough, do not attempt this method of ventilation**. If you do, the fans will only pull air from the non-brooding end of the house and not from the end where the birds are.

A quick way to check if the brooding curtain is loose enough is to measure the house static pressure on both sides of the curtain. If the difference is less than 0.02", the fans will have no problem pulling air from the brooding end of the house.

Growers who have used this method of ventilation have reported that the house stays warmer, fuel usage is reduced, and that birds move more quickly to the non-brooding end of the house when let out. But, it cannot be over emphasized, this method of ventilation will only be successful if a house is tight.

Michael Czarick
Extension Engineer
(706) 542-3086

Michael P. Lacy
Extension Poultry Scientist

Publication made possible by U.S. Department of Energy Oil Overcharge Grant through the Georgia Office of Energy Resources.