

Why maintain broiler breeders within their thermal comfort zone post-brooding?

- The thermal comfort zone is the temperature range within which a bird does not have to expend energy in order to maintain its normal body temperature (i.e. it is thermally comfortable).
- Keeping *chicks* within their thermal comfort zone ensures:
 - a good start.
 - weekly live weight targets are reached.
 - good livability.
 - good cardiovascular and skeletal development.
- However, equally important is keeping broiler breeders in their thermal comfort zone *throughout the rearing period and during production*. This ensures that their daily nutrient allocation is used efficiently for maintenance, growth, mating activity, and egg production.



The procedure for assessing broiler breeder comfort

The best way to determine if birds are within their thermal comfort zone is to monitor bird behavior. This should be done every time you enter the house, avoiding the period immediately after lights have been turned on and not within one hour after feeding.

Prior to entering the house, ensure all relevant protective farm clothing is being worn and that boots have been disinfected and hands sanitized.

Procedure

- Step 1** Lightly knock on the door of the house and open it slowly, disturbing the birds as little as possible.
- Step 2** Enter the house slowly and quietly so the birds remain calm.
- Step 3** Stand or sit in the house in a place where the majority of the flock can be observed clearly with minimum disturbance to the birds (away from entrance doors, side walls, ventilation fans), taking note of:
- Bird noise / vocalizations.
 - Are the birds quieter or noisier than normal?
 - Bird distribution in each pen or across the whole house.
 - Are birds evenly distributed throughout the pen / house?
 - Overall bird activity.
 - Are birds active and exhibiting normal behavior (preening, feeding, drinking, nesting, dust bathing and mating)?
- Step 4** Observe the birds for at least 5 - 10 minutes.

Interpreting results

If birds are within their thermal comfort zone:

- Birds will be evenly distributed throughout the house.
- Birds will vocalize contentedly.
- An equal number of birds will be preening and dust bathing, using nest boxes, and drinking and feeding.

Note - It is normal for a small percentage of birds to pant at any given time of the day and age (5 - 15%).



No action required

Interpreting results

If birds are too warm:

- The percentage of birds panting will rise. Breathing will become labored and wings will be held away from bodies.
- Few birds will sit together in a group; most will be sitting with space around them.
- The house will be more quiet (reduced vocalization).
- Bird activity will be reduced.



Birds panting in nest boxes (left) and wings held away from the body (right).

Action required

- Increase the number of fans running to increase air speed and reduce the temperature the birds feel (effective temperature). The exact number of fans to be turned on will depend on age of birds, environmental temperature, fan capacity and whether or not the house has evaporative cooling facilities.
- If evaporative cooling pads are in place, check that the cooling pad water pumps are turned on. If they are not, switch them on. If cooling pad pumps are on, check that the pump cycle time is correct (house temperature should be stabilized).

Note - Evaporative cooling pads will increase relative humidity further and should not be used if relative humidity is 80% or above.

- If fogging systems are being used, ensure that they are not blocked. Check that the cycle timer for the fogging system is correct (house temperature should be stabilized).
- If day time temperatures are known to be high, it is beneficial to quietly walk among the birds on a regular basis (every 1 - 2 hours), making birds stand up helps to release the heat trapped in the litter beneath them. However, this technique **must** be started as early as possible in the day to prevent an initial build-up of heat.
- It may be beneficial to run fans through the night to reduce latent house temperature as much as possible.

Interpreting results

If birds are too cold:

- Birds will huddle together in groups in the house.
- Feathers will be ruffled / fluffed out to increase insulation.
- A drop in egg production may occur. When birds are cold the level of feed / nutrients being given may not be enough to maintain egg production and / or heat production.

Note - A drop in egg production can occur for a number of reasons and should not be taken as the sole indication that birds are cold.

- Floor egg levels may increase as birds huddling to keep warm will also lay their eggs on the floor. Cold nest boxes will also increase floor egg levels.
- Bird vocalization may increase or reduce.

Note - The effect of colder conditions will be greater if feather cover is poor.



Action required

- Turn the last fan off that was turned on in the house.
- Turn off cool pads if running.
- Turn off fogging equipment if running.
- Increase house temperature by 1 - 1.5°C (1.2 - 2.7°F).

Any changes made to the house environment should be made in a systematic way one by one. Once adjustments have been implemented, the house should be left for approximately one hour so that the environment can stabilize and birds can settle down. Bird comfort and behavior should then be re-assessed; further adjustments being made if required.