Equipment for checking brooding set-up

Correct brooding conditions are important for getting chicks off to a good start. You can accurately assess the conditions into which the chicks are being placed by having the correct equipment at your disposal.

Below is a list of equipment that can be used to monitor brooding conditions.

Equipment	Purpose	Methodology	Specifications
Scales	To take individual weights and CV%	Individually weigh all the chicks in one box from each parent stock source flock	A small scale with a 1000g capacity and a 0.1g readability
Vent thermometer	To measure vent temperature at placement and two hours later	Five chicks from rear, middle and front of transport vehicle / ten chicks from at least five different locations of the house	Braun® Thermoscan® Ear Thermometer with Exact Technology
Infrared spot thermometer	To measure concrete/ floor and litter temperature, and paper temperature where applicable	Measure 24 hours prior to chick arrival to achieve recommended temperature and after placement to assess chick comfort	A digital infrared thermometer with a spot laser.
Stick thermometer	To measure water temperature	Drain water into a beaker and measure temperature with the stick thermometer	Proven digital thermometer
CO_2 meter	To measure temperature, RH% and CO_2	Taken in the chick brooding area at chick height in three different locations in the house	Digital meter that reads RH, CO_2 and Temperature
Air speed meter	To measure air speed	Taken in the brooding area at chick height	Reliable air speed meter e.g. Kestrel 3000
Light intensity meter	To measure light intensity	Measure at bird height at nine or ten different locations throughout the house	Reliable light meter
Crop fill	To monitor appetite development and finding food and water	Two and four hours after placement. Record 30-40 chicks from three different locations of the house	How To Assess Crop Fill
Feed sieve	To determine feed physical quality	Take a sample of feed from the hopper closest to the feeders	Aviagen feed sieve
Thermal Image camera attachment for smart phone	To highlight, hot/cold spots, drafts, chick comfort	Use before placement to highlight issues with set-up, and after placement to assess chick comfort/temperature	Reliable thermal camera

Note: *the equipment given in the table above are examples only*

Monitoring Brooding Check List

Chick Placement

Recommended environmental conditions at placement:

- **Air temperature (measured at chick height in the area where feed and water are positioned):**
  - 30°C/86°F for whole-house brooding
  - 32°C/90°F at edge of brooder for spot brooding
- **Litter temperature:**
  - 28-30°C (82.4-86.0°F)
- **Vent temperature:**
  - 39.4-40.5°C (103-105°F)
- **RH:**
  - 60-70%

Air speed:

- maximum of 0.15 meters per second (30 ft per minute)

CO2:

- <3000 ppm

Feed:

- dust-free crumble or mini-pellet. A total feed amount of approximately 40 g (1.5 oz) per bird should be measured out and fed on the paper prior to chick placement

Water temperature:

- 18-21°C (64-70°F)

Drinkers:

Drinker Type	Broilers	Parent Stock
Nipple lines	12 birds per nipple	12 birds per nipple
Bell drinkers	6 per 1000 birds	8 per 1000 birds
Supplementary	10 per 1000 chicks	12 per 1000 chicks

Feeders:

- Feeder trays: 1 per 100 chicks for broilers or per 80 chicks parent stock and/or on paper occupying at least 80% of the floor

Litter depth:

- 2-5 cm (0.8-2 in)

Light intensity:

- **Broilers:** 30-40 lux (2.8-3.7 fc)
- **Parent Stock:** 80-100 lux (7.4-9.3 fc) in area with food and water and 1-2 lux (0.09-0.2 fc) in rest of house

Feed form:

Particle Size	Crumb/Mini pellet	Mash
> 3 mm	15%	25%
2-3 mm	40%	25%
1-2 mm	30%	25%
< 1 mm	< 10%	25%

2 HOURS *after Chick Placement*

Crop fill:

- Target crop fill 75% of chicks sampled should have a full crop

4 HOURS *after Chick Placement*

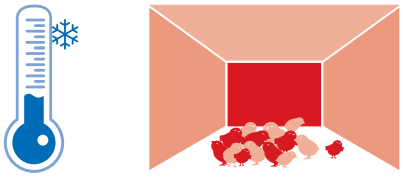
Crop fill:

- Target crop fill 80% of chicks sampled should have a full crop

Check water levels in supplementary drinkers and feed amounts on paper

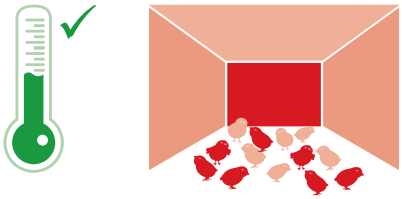
- Are chicks feeding and drinking?
- Do feed and water levels need topped up?

Chick behavior: If chick behavior indicates that environmental conditions are not correct, adjustments to the environment must be made and behavior re-assessed.



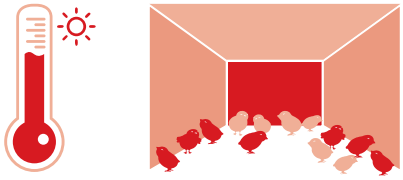
Environment too cold: Chicks huddle together or under heat source, and may be noisy and distress-calling.

Action Increase temperature



Environment correct: Chicks are spread evenly and noise signifies contentment.

Action No action required



Environment too hot: Chicks move away from heat source, are quiet and pant, and head and wings droop.

Action Decrease temperature