



HOW TO MEASURE AND ANALYSE FLOOR TEMPERATURE IN A PREMIUM CHICKEN HOUSE?

Newly hatched chicks are not capable of fully regulating their body temperature. Ensuring the house and floor are adequately preheated is a critical management practice. The optimum temperature zone (comfort zone) for a young chick is very narrow (32 - 34 °C / 89.6 - 93.2 °F).

Below 32 °C / 89.6 °F the chick is not capable of maintaining its body temperature. Above 34 °C / 93.2 °F the chicks are less active and are at risk of low feed intake.

Objective: Ensure accurate (± 0.1 °C / °F) and consistent measurement of the floor temperature to maintain optimal conditions for broiler performance and welfare.

1. EQUIPMENT REQUIRED:

- Infrared thermometer (optical resolution: 20:1).

2. METHOD:

- When? At least 4 times per day: early morning, midday, and evening.
- What? Measure the floor temperature before chick arrival by removing the litter at several points spread over the house to check the floor temperature (to check pre-heating).
- At what height? Hold the infrared thermometer 1 meter above the floor.
- Where? Like shown on the right-side figure (Fig. 1), use at least 3 spots in each of the following areas to check the uniformity of the temperature (middle of the house, near side walls, front and back ends, under brooders if present).

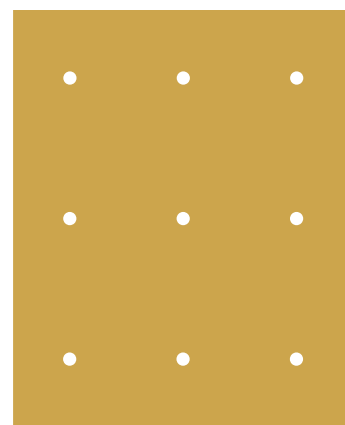
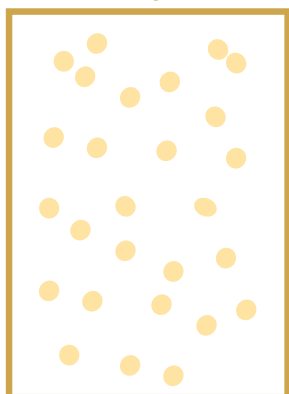


Fig. 1 – Location of the measurements

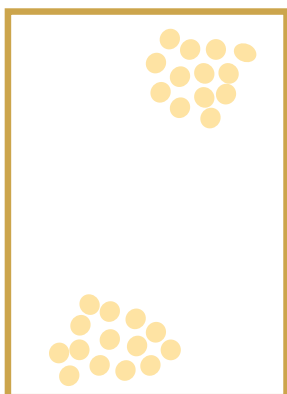
3. RECORDING & ANALYSIS:

- Record the floor temperature, the date, time and location for each data temperature.
- Also record the relative humidity in %.
- Vent temperature can also be checked with an accurate (accuracy of 0.1 °C / 32.18 °F or less) and regularly calibrated digital thermometer without moving chicks outside the brooding area to ensure no bias in the measure.
- Observe chick behaviour: distribution throughout the house, chirping, attitude, and their feeding and drinking activity (Fig. 2).

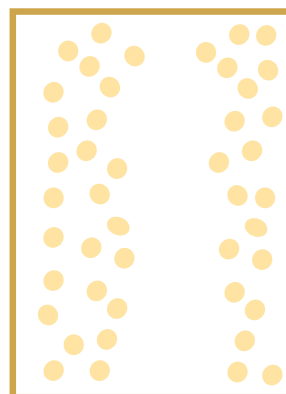
Good temperature



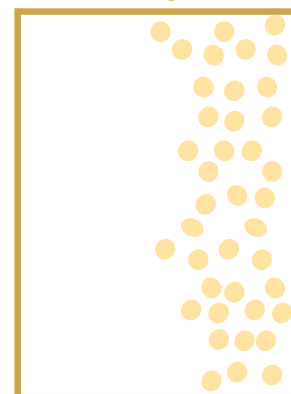
Too cold



*Too hot **



Draught



*If the chick distribution look like they are cold, please check whether huddling is a social huddling or if the chicks are cold.

Fig. 2 – Interpretation of the distribution of chicks in their brooding area



HUBBARD RECOMMENDATIONS

► The adjustment of the equipment is based on observation of chick behaviour.

► Targets :

▷ Floor temperature: 29 to 30 °C / 84.2 to 86 °F.

▷ Vent temperature: 39.5 to 40.5 °C / 103.1 to 104.9 °F.

▷ Ambient temperature: see table below.

► Chicks from young breeders are smaller and may require a higher ambient temperature approximately 1 °C / 1.8 °F higher for the first week.

► If chicks have cold feet, it may be necessary to increase the ambient temperature to 34 - 35 °C / 93.2 - 95 °F for at least 4 - 6 hours. If you see the chicks huddle together after placement, do not simply assume that this is because the chicks are cold. Premium breed chicks usually like to practice social huddling. If the feet are not cold but huddling is seen, then it is best

to leave the house temperature setting and reassess the chicks 2 - 3 hours later. If the house temperature is increased to 34 - 35 °C / 93.2 - 95 °F then it is very important to reassess feet temperature every two hours until it returns to normal before decreasing the house temperature. Monitor chick condition hourly at these temperatures as the risk of dehydration can be high, especially in the middle of a social huddle.

► Be careful when using hot water / hot air or underfloor heating systems are used, as relative humidity may be very low under 30 °C ambient temperature which may increase the risk of dehydration.

► When on-farm hatching is practiced then the house temperature will be much higher, but once the hatching is completed the same recommendations should be applied as outlined above.

Age (days)	Temperature (°C / °F)			Relative humidity (%)	Air speed (m/s)	Min ventilation cold (<5 °C) (m³/ kg LW/h)	Min ventilation temperate & humid (m³/kg LW/h)
	Using Brooders *		Whole house heating				
	Under brooders	Ambient temperature					
0	38 / 100.4	30 / 86	32-34 / 89.6-93.2**	40-60	0.1-0.3	1.0-1.2	1.5-2.0
7	33 / 91.4	28 / 82.4	29-30 / 84.2-86	40-65		0.9-1.1	1.2-1.8
14	30 / 86	27 / 80.6	27-29 / 80.6-84.2	50-65		0.8-1.0	1.2-1.5
21	29 / 84.2	25 / 77 ***	25-27 / 77-80.6***	50-65	0.3-2.0	0.8-1.0	1.2-1.5
28		23-25 / 73.4-77	23-25 / 73.4-77	50-65		0.8-1.0	1.2-1.5
35		21-22 / 69.8-71.6	21-22 / 69.8-71.6	50-70	0.5-3.0	0.8-1.0	1.2-1.5
> 42		19-21 / 66.2-69.8	19-21 / 66.2-69.8	50-70		0.8-1.0	1.2-1.5

* For canopy / traditional brooders the thermometer height should be 10 cm from the litter and 30 cm from the edge of the brooder.

** The floor temperature should be at least 29 °C at the time of placement.

*** For flocks which have access to outside as early as 21 days, lower room temperature may be targeted according to weather conditions.

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