BroilerNet Factsheet AW2-C2-1

Preheating of the poultry house

Authors: A. Kleiber, D. Labbé



Preheating : a key practice for optimising young chick management

Ensuring optimal conditions for day-old broiler chicks upon arrival is crucial for their welfare, growth, and global performance of the farm. One fundamental good practice to achieve this is by preheating the poultry house, which helps to create a stable and comfortable environment before chicks' arrival. Without adequate preheating, chicks may experience cold stress, leading to poor feed and water intake, reduced growth, and increased susceptibility to disease. To implement this practice effectively, the poultry barn must be heated several hours (36 hours), and often days (3 days) before the chicks' arrival, depending on external conditions and barn type. This ensures that not only the air but also the litter and floor reach the target temperature, optimising the thermal comfort of the birds. To effectively implement preheating, the farmer follows a precise heating schedule to ensure a gradual and uniform temperature increase.



Infrared thermometer for measuring the temperature of the floor slab.

Example of a farmer's preheating protocol

The farmer in question, David Labbé, uses gas cannons as his heating system and has internal insulation all around his two broiler barns. The barns have concrete floors. He applies the following preheating protocol to gradually rise temperature:

At Day-3: 25°C
At Day-2: 28°C
At Day-1: 30°C
At Day 0 (chicks arrival): 32.5°C

This stepwise approach prevents thermal shock and ensures that both the air and the concrete floor reach a uniformed temperature. In parallel, the farmer carefully manages ventilation to eliminate excessive humidity as soon as Day-1.



Preheating of the poultry house

Benefits according to the farmer

- Better start of the chicks: ensures a uniform flock from day 1
- More active animals
- Lower mortality
- Fewer colibacillosis (*E. coli* diarrhea) infections
- Economic impact considering direct/indirect costs, revenue, productivity gains/losses, animal welfare outcomes, environmental and health impacts, as well as effects on workload aspects: +10% of gain per year
- Easy to implement practice



An aerial view of the farm owned by David Labbé, a member of the French innovation network created as part of the BroilerNet project.

Preheating costs: the farmer's example

The cost of gas is €1,000 per ton. The preheating therefore represents a cost of around €700 of gas per batch per broiler barn in winter, or an average of €500 per batch per house throughout the year. This represents around €14,000 a year for the farmer.

This cost is calculated for a farm including two poultry barns of 1350 m², for 27,540 chickens each. The farmer conducts 6 batches per year.

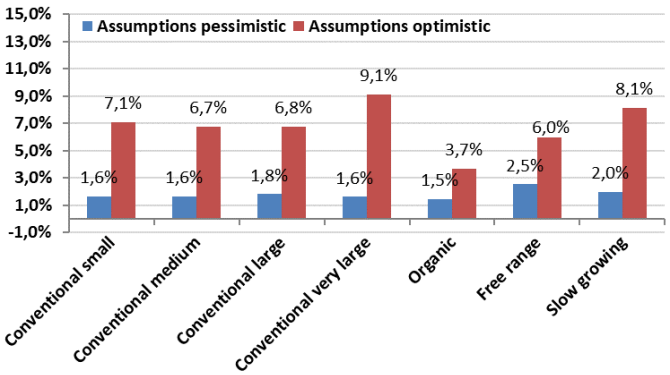
Recommendations

- Ideally, the litter should be added after preheating to allow the floor to warm up properly before arrival of the chicks to ensure a dry and comfortable environment. However, in practice, this is not always done.
- Similar preheating duration for poultry barns with earthen floors, but thicker litter is required
- Prevent chicks from having hot heads and cold feet (if the farmer does not preheat, the slab and the floor will not be warm at their arrival)

BroilerNet Cost-benefit analysis

The economic effects were estimated for optimistic and pessimistic assumptions regarding costs and benefits related to implementing this Good Practice.

Implementing this GP seems profitable for all types of farms, both under optimistic and pessimistic assumptions. Farms with very large flocks can achieve greater financial gains. In organic and free-range farms, the gross margin increase is lower, as investment costs are spread over a smaller number of broilers. See for more information: Deliverable 5.3 in the BroilerNet Knowledge Hub.



Change in Gross Margin (=Sales Value-Variable Costs of Production) compared to the base model (before GP implementation)

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