



## On-farm hatching to improve broiler welfare from the start



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### Context

In a commercial hatchery, broiler chicks hatch within a period of 24-48 hours in a hatcher. During this time, usually no water or feed is available. Only once the hatching phase is over, all the chicks are removed from the hatcher, whereafter they go through a range of hatchery procedures before they are transported to the barns for rearing. In the current EU legislation<sup>1</sup>, placement of chicks in the barn must be completed within 72 h after hatching. An alternative to this is hatching on-farm, i.e., within the barn. This way, the chicks have immediately access to light, water and feed after hatch, while hatchery procedures, transport and unloading are avoided.



### On-farm hatching systems

A variety of systems are used for on-farm hatching (e.g., Patio™, X-Treck®, Home Hatching™, One2Born®, NestBorn®)<sup>2</sup>. One of the simplest is the system, where the eggs are placed directly in the litter. This requires no investments by the farmer in special equipment or modifications of the poultry house. The hatchery brings the pre-incubated eggs on embryonic day 18½ (range 17 – 19 days) and places the eggs, using a special machine (Fig. 1).



*Fig.1: An egg placing machine places the incubated eggs directly in the litter bed at the farm. The capacity is 60,000 hatching eggs per hour. ©HFHC / NestBorn®*



### Costs & Benefits

The hatchability ranges from 99% to 95-96%, depending on several parameters, including the candling technique applied by the hatchery, the age of the breeders and the farmer's technical expertise.

This hatching process allows chicks to hatch directly in their rearing environment in the absence of any stress. It offers the chicks immediately access to feed and water, which is beneficial for the early development of their digestive tract, organs as well as immune and thermoregulatory systems<sup>3</sup>.

While this is not consistently observed, some studies indicate that on-farm hatching results in better initial growth and this can last several weeks (d28<sup>4</sup>, and d35<sup>3</sup>). According to field feedback and scientific studies, on-farm hatching results in more robust and healthier birds<sup>4,5</sup> compared to traditional hatchery hatching due to faster intestinal development and improved immunity. The sanitary advantage is also significant with chicks being hatched and raised in the same location. Avoiding handling and transport, which are a source of contamination, limits the need for antibiotic interventions during the rearing period<sup>6</sup>.

The farmers' workload remains the same, except for the tasks of vaccination and the collection and disposal of unhatched eggs, which are traditionally handled by the hatchery. Vaccination can be done by the farmer with nebulization (i.e., in an aerosol mist, requiring about half a man-hour per barn) or as in-ovo vaccinations. Nevertheless, on-farm hatching requires farmers with good technical skills, good management and well-enough insulated barns.

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Procedure of on-farm hatching where eggs are placed on the litter bed

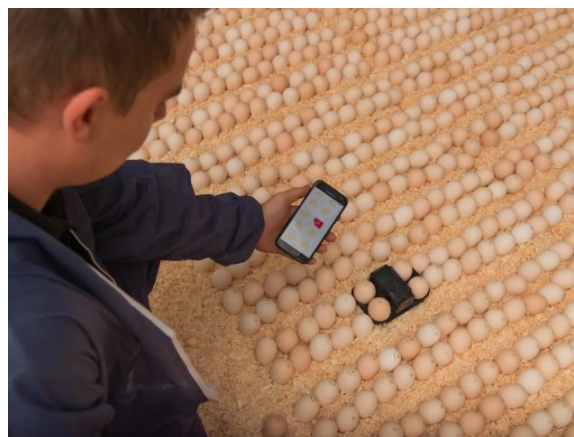
The building must be prepared in advance: cleaning, disinfection, laying down litter, etc. This requires 4 to 5 hours of work by two people. Upon arrival of the eggs, the floor should be covered with wood shavings (3-5 cm), and the floor temperature should be maintained between 26 to 28°C. An ambient temperature of 33.5-34°C should be maintained in the barn for hatching. The temperature of the eggs should be maintained between 36-38°C and kept as constant as possible. Monitoring is especially important at placement.

It is recommended to place wireless sensors between the hatching eggs to keep a close eye on the three-day hatching process. The sensors continuously measure both eggshell temperature and climatic conditions in the poultry house (Fig. 3). Data can be accessed via a PC, tablet or smartphone for real-time monitoring. Adjustments can be made where necessary, to allow for an optimal on-farm hatching process.



*Fig. 2: When hatching on-farm, chicks hatch inside the poultry barn, where there is light, water and feed.*

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*Fig. 3: Sensors may be placed between the hatching eggs to track the three-day hatching process 24/7 and in real time.*

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## Additional information

Day 21 is the peak hatching period. The chicks eat and drink. On the day hatchery chicks would normally be placed (days 22-23), the last chicks hatch from their eggs. Unhatched eggs (target <2 - 3%) are collected, grounded, macerated or gassed, and removed from the barn, as for first-day culls (the second-grade chicks). The hatching rate is unknown in advance, so there may be either too many or too few chicks, but the difference stays within predicted boundaries.

The cost of producing on-farm hatched chicks is higher than for a traditional hatchery-hatched chicks due to factoring in the vaccine, extra heating gas, and extra bedding. The objective is that production benefits (e.g., higher performances or lower antibiotic use) as a minimum compensate these costs.

## References

This Good practice has also been identified in the EU Broilernet network: <https://broilernet.eu/>

<sup>1</sup>Council Regulation (EC) No 1/2005 of 22/12/2004 on the protection of animals during transport and related operations.

<sup>2</sup>EFSA AHAW Panel et al. (2023). Scientific Opinion on the welfare of broilers on farm. *EFSA Journal*, 21 (2):7788.

<sup>3</sup>Malchow, J., et al. (2025). Effect of on-farm hatching and elevated platforms on behavior and performance in fast-growing broiler chickens. *Poultry Science*, 104(4), 104910.

<sup>4</sup>Boothe, et al. 2024. Research Note: Effects of on-farm and hatchery hatching on broiler performance, intestinal lesions, and immune response during a subclinical necrotic enteritis challenge, *Poultry Science*, 103(12).

<sup>5</sup>Akram et al. (2025). Effects of on-farm hatching versus hatchery hatching on growth performance, gut development, and intestinal health and function in broiler chickens, *Poultry Science*, 104(2).

<sup>6</sup>Jerab, J. G., et al. (2023). Antimicrobial Use in On-Farm Hatching Systems vs. Traditional Hatching Systems: A Case Study. *Animals*, 13(20), 327



Co-funded by  
the European Union



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