Effect of the Warming Profile at the Start of Incubation on Hatchability and Chick Quality in Short Stored Eggs

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Abstract

Storage of hatching eggs is a common procedure at breeder farms and hatcheries. Previous trials showed that a warming profile at the start of incubation, of which the increase in temperature from 29.4°C to 37.8°C was controlled, reduced early embryonic mortality in long stored eggs (>7 days) in comparison to no controlled warming profile.

The current trial investigated the effect of warming profile on hatchability and chick quality for short stored eggs (< 7 days) of a young, prime, and old flock.

Per flock age (Ross 308), 4,800 eggs were warmed from storage temperature (18°C) to an eggshell temperature (EST) of 37.8°C with 4 warming profiles: warming as fast as possible (profile Fast), linear increase of 5 hours to an EST of 29.4°C, followed by a linear increase of 5 hours to an EST of 37.8°C (profile 5-5), profile 5-12, and profile 5-18.

Hatchability and chick quality in terms of body weight, chick length, and navel quality were measured. For the young flock, hatchability was 4.7% higher for profile 5-12 than for profile Fast (P=0.02). Chick length was higher for profiles 5-5, 5-12, and 5-18 than for profile Fast (P<0.001).

For the old flock, percentage of completely closed navels was 19.6% higher for profile 5-5 than for profile Fast (P=0.04).

It can be concluded that controlling the warming profile from 29.4°C to 37.8°C is not only beneficial for long but also for short stored eggs. The optimal warming profile depends on flock age.