Chick transport conditions

The need for optimal egg handling, incubation, and chick processing conditions to allow the embryo to develop normally and in good health is already well established.

These needs are still just as important after the chicks leave the hatchery, all the way into the brooding environment.

At hatch, on average, between 10 and 12% of the chicks' body weight comes from residual yolk, which supplies the newly hatched chicks with nutrients and water until they reach the farm. This is a logical evolutionary adaptation for precocial chicks (which can run around and explore soon after they hatch); they hatch over a period of hours, and the earliest to hatch must be kept safe until they are all emerged and ready to leave the nest.

Newly hatched chicks, although well developed at hatch, and supplied with enough nutrients and water to sustain them for 60 hours or more, are still relatively poor at controlling their own body temperature – this ability develops slowly over the first week or so. Environmental conditions suitable for the chicks to maintain an optimal body temperature is probably the most important aspect to control when creating good transport conditions. Optimal vent temperature for unfed chicks is between 39.4 and 40.6°C; up to date advice on the best way to measure vent temperature can be found in two other tips in the section covering chick processing and storage.

Chicks travel grouped in small populations of 20-80 held in cardboard or plastic boxes, so they do have the capacity to overcome challenging temperatures by behavioral modification, at least in the short term. Too cold, and they will huddle together; too hot and they spread out and pant.

However, they cannot maintain either for long and for anything but the shortest trip, they need the air temperature in the box to be around 30°C. Wind chill caused by the relative air speed in the surrounding room will affect the set point. In still air, the external temperature may need to be as much as 6°C lower, but at high air speeds, it could only be 2°C.

If the temperature is consistently incorrect, it will have an impact on chick survival. We are usually very wary of overheating – if severe, the consequences can be catastrophic. Some of the early trials of in-hatcher feeding had high early mortality because it was not realized that fed chicks produce a lot more heat, and so the vehicle needs more cooling capacity. On the other hand, recent trials at Aviagen have demonstrated that slight chilling (box temperature of 24°C), while survivable short term, eventually jeopardizes the chicks' ability to control their body temperature. Once that happens, first week mortality can more than double. An equivalent rise in box temperature (to 36°C) had a much smaller impact on mortality, causing it to rise by about half.

Chick transport is the last part of the process of providing farms with day-old chicks. They are often surprisingly tough, but getting the ambient temperature right will go a long way towards improving early livability.