

The Importance of Humidity & The Egg

by Mike Corbell

The egg is indeed an incredible thing, and your understanding of it and its purpose as well as its anatomical design, are paramount. Go online and read everything you can to understand all the parts and purposes of each element that make up an egg and how they apply. This will bring you to understanding why humidity is so important. When people complain about or experience dead in shell, generally three major aspects are the cause.

1. Lack of breeding condition of the parents.
2. Health of the parents
3. Incubation which includes environment, including humidity.

Here, I am only going to speak of humidity.

Humidity is one of four primary variables which must be controlled during egg incubation. The others being temperature, ventilation and the turning of the eggs by the hen. Humidity is the most difficult of the four to measure accurately and control, therefore is commonly misunderstood. Before spending time and effort checking incubation humidity levels it is essential to ensure that the parent stock is healthy, properly fed and in proper breeding condition, and that eggs when laid are fertile.

The Effect of Humidity on the Incubation Egg

Egg shells are porous, they allow water to pass through, and so all eggs, whether being incubated or not, dry out slowly. The amount of water that an egg loses during incubation is important and this is determined by the humidity levels. If the humidity level is high then the egg will 'dry out' slower than then the egg will 'dry out' slower than if the humidity is lower.

All eggs have an air space at the round end and as water is lost through the shell it is replaced by air drawn through the shell into that air space and the air space gradually increases in size. The greater the water loss

through the shell, the larger the air space. This air space plays a crucial part in incubation. Within it is the first air that the fully developed chick breaths and the space allows the developed chick some movement inside the shell to allow it to maneuver into the hatching position.

If the incubation humidity has been too high the egg will have lost too little moisture and the chick will be rather large. In this case the air space will be too small, the chicks respiration will be affected and the young bird will have difficulty breaking out of the shell because of the lack of space. Commonly with excessive incubation humidity the chicks will die having broken through the shell in one place ('pipped'), either through weakness because of the lack of air to breathe in the shell or because of lack of space to cut around the shell with their bill. Often, because of pressure within the egg, the bill protrudes too far out of the initial hole preventing the normal anti-clockwise progress of the bill chipping the shell from the inside. The bill becomes gummed up with drying mucus.

Low incubation humidity levels lead to small chicks with large air spaces by the time the hatch is due. These chicks will tend to be weak and may also die just before, during or just after hatching. It should be noted that in general, a lower humidity level than optimum is likely to be less disastrous than a slightly higher than ideal level.

Humidity and Hatching

The humidity levels required as the chick emerges are different from those earlier in incubation. For the last day or so of incubation, humidity levels need to be much higher than earlier on. By this stage the weight loss of the egg should be 13 t-15% and water loss for the last 24-48 hours will not significantly affect his. The high humidity levels are required to prevent the membranes of the egg drying too fast as the chick

hatches and becoming tough and difficult to tear. In natural incubator the membranes cannot dry quickly because the parent bird is sitting on the egg. Also why most top breeders have learned to add a bath to the cage one or two days before hatch date. This is for the hen to bath which during the last day/days insures moisture. The actual level of humidity is not too critical for hatching but needs to be at least 60% relative humidity.

I have gone over the overall aspects in this article to point out the seriousness of humidity in relation to chick hatching and what occurs within the egg itself, moisture and air wise, to allow the chick to succeed. In practice, one should have a temperature and humidity gauge in their breeding room to monitor, at a glance these aspects. Big swings in temperature can destroy or kill the chick if the hen is not set and not in good breeding condition. Then as long as the relative humidity remains at or around 50% all should be well. If it begins to dry or rise, no worry unless it remains at lower or higher levels for a prolonged time. The egg should decrease in weight through the incubation process, this is normal and should occur as the moisture within declines an air the chick needs increases. The only time we want a higher or increase in humidity is at the end, or just before hatching. We then add a bath, allowing the hen to bathe, which in turn will increase the needed humidity or moisture to the egg that the chick will need to hatch successfully.

Lastly, to state it, if you have experienced chicks found dead in shell, at an advanced stage, defined as fully developed, this is the clue. Either there is a health issue in the parents or humidity should be looked at. If you have experienced clear eggs or chicks dead in shell at a very early stage, defined as not very developed, those are clues to the lack of parental breeding condition generally. I will add here so it's said, many people blame their birds for bad breeding seasons, when in truth, 80% of the problems are created and generated by the breeder, not the bird. Conditioning is not what this article is about but it is a vital aspect. (as is pairing of your birds in relation to standards). To condition your birds correctly for breeding takes time and specific attention, only you will know the truth. If you throw two birds together and hoped to succeed, well, chances are you won't, and you cannot blame the birds



Images [Canary Tales](#)



Have a great breeding season!