

Chickens through the McDrive

By Ron Meijerhof

Between the first chick hatching and arrival at the farm, there can be a significant time difference. Normally we see the first chicks hatching approx. 36 hours before pull time. When we start pulling the chicks, it will usually take several hours before all chicks are processed and ready for loading. From the hatchery it can take several hours driving to the farm, so in total it will often be close to two days between the time the first chick hatches and it having access to feed and water on the farm.

This period of no access to feed and water is no problem for the chick itself. Mother nature cannot guarantee immediate access to feed and water as well, so it has provided day old chicks with a lunch box, the residual yolk sac. This residual yolk contains 50% water, approx. 35% fat and 15% protein. When a chicken doesn't eat and drink, it will lose weight. When a chick is on temperature (approx. 40oC/104oF deep body temperature) it will breath through its nostrils and evaporate approx. 1 to 2 grams of water vapor per 24 hour. If the bird doesn't take up at least the same amount, it will lose weight. However, digestion of the residual yolk also gives 1 to 2 gram of metabolic water per 24 hours. So although the bird does lose weight, it will not dehydrate. Dehydration will occur when its body temperature is too high (above 41oC) and it will start to pant to lose heat by evaporation. In that situation the digestion of the residual yolk is not enough to compensate for the moisture loss any more.

The fat in the residual yolk is there for the supply of energy, where the proteins are in principal used for building up the body. However, a bird (like any other animal) cannot burn fat just as it is to get energy. In the energy system in the cells, there need to be two different inputs present. One comes from fat, and the other comes from either carbohydrates, or protein. If no carbohydrates are present, the fat needs to be burned together with protein. This is well known in humans as well, if carbohydrates are left out of a diet, one loses weight as the fat cannot be effectively utilized anymore.

When the bird in nature (or in our commercial situation) can find feed, it can use the fat in the residual yolk together with the carbohydrates from the feed, and the proteins in the residual yolk can then be used for building up the body (growth). When there is no feed available, the bird can use the fat and the protein in the residual yolk together for the energy supply. This means the bird can do very well without feed during the first few days, but of course this is not what we want, as the birds will not grow but "waste" its protein for energy supply.

This makes it beneficial to feed chicks during transportation or even during the hatching phase. If the bird gets feed during transportation, even if it is just a few gram, it will start to digest the fat in the yolk without using the proteins for energy, and their development will be better. This has been shown in several experiments, feeding during transportation works positive on development of the immune system, of the intestinal tract, on the thermoregulation etc. For instance, chicks that receive 2 grams of feed directly after hatch have an increased body temperature even 48 hours later, although by that time the feed is long gone. This is positive, but it also means that we have to be careful if we give feed prior to transportation. Due to the higher heat production we must slightly lower the transportation temperature in the truck, to avoid overheating.

There are several options for feeding during transportation. A range of commercial products is available, but also welded rice or fruit parts can work well. This is often used when chick transport is done over longer time or distance, but also for shorter transportation it can be beneficial. Especially chicks from young breeder flocks benefit from this treatment, as often they do not have enough internal heat production to deal with the situation on the farm.

Whatever product is used, we have to realize that a bird can eat it, but it can only digest it when there is enough water available. This means that the product needs approx. 30% of water when it is eaten. If a product is supplied dry, or is dried up by the time the birds get access to it, they will eat (most of) it but a big part will leave the body in the same way as it came in, undigested. Products like welded rice, fruit but also boiled albumen contain normally enough water to be digested, but with commercial products this is a point of attention.

Early feeding might not be that important for the bird's survival, but it is beneficial for its production performance. However, if we supply the birds a fast food menu, we will have to provide it with something to drink as well. An important ingredient in every diet is water. If sufficient water is not available, digestion will not be optimal.

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