

## Feature

# Water: the forgotten nutrient?

Mark Elliott BVSc VetMFBom MRCVS of South Downs Veterinary Consultancy looks at the importance of an often overlooked commodity.



IN A COST CONSCIOUS WORLD, FOCUS IS ON the negotiable and substantial cost items such as food. If mistreated, food can go rancid, mouldy and even be stolen, so safe and effective storage gets proper investment. In the keeper's world it is normal practice to cover food hoppers to protect the pellets put out for the birds for just this purpose.

Water, however, is readily available, cheap, and rarely regarded as a concern, so receives little attention until a problem arises. Problems created by issues of water are often unseen and hard to investigate, which further complicates matters.

Yet water is a critical nutrient in bird metabolism and nutrition. It is really the most important nutrient, and growing birds consume almost twice as much weight of water as they do food – more in hot weather. Without water, birds do not eat, and without food they dramatically reduce water intake – the two are intrinsically linked.

Birds require clean, safe water that is readily accessible. This seems so obvious, yet it is often forgotten and can lead to so many problems. Cleanliness and safety go together.

Water systems require maintenance if they are to deliver clean safe drinking water constantly. Over time, especially when additives such as vitamins, electrolytes and medications are run through them, a slime coating forms on the inside of pipework which is created by micro-organisms that stick together using a self-produced matrix. This is known as 'biofilm'. Even if initially harmless, biofilm provides a platform for colonisation by disease-causing bacteria such as *E coli*, *Salmonella*, and *Pseudomonas*, which is bad enough were it not also for the possibility that exposure to medications, etc, in that protective environment can lead to resistant and more aggressive strains of bacteria to evolve and with consequent impact on the birds. Regular cleaning of water systems

to remove biofilm is not only logical, but also makes economic sense.

But cleaning alone is not enough. I've already mentioned food protection in

## *Birds would rather die than drink warm water*

covered hoppers, but what about water being protected?

Open water drinkers and header tanks are easily contaminated by droppings, build up of organic matter and are, consequently, more prone to spreading disease. Added to that, if medicating or sanitising, increased evaporation from open drinkers can affect concentration of additives/medications and some will breakdown in sunlight. So covers for water make sense, and there are now cleverly simple covers that can be added to existing drinker systems.

Consider also colour and routing of piping and header tanks. Birds will drink water cold, even to near freezing, but would rather die than drink water close to or above their body temperature. Black piping and header tanks exposed to sunlight heat up more rapidly than covered, insulated and lighter coloured versions. Temperature also increases risk of bacterial build up, and can affect medications adversely – there is good reason medicines have to be stored within specified temperature ranges.

Simple ideas such as huge ice blocks in header tanks painted with reflective paint, and burying piping to reduce exposure to sunlight all pay dividends.

Dehydration is one of the main concerns that lead to diseases such as Hexamita developing. It is logical and well understood that Hexamita commonly occurs after moving birds, one of many reasons to avoid transporting during hot days and for long distances. Many shoots now add electrolytes to the drinking water to encourage thirst on

arrival as not only do these replace minerals depleted by heat stress, they also stimulate water

consumption. But do these taste nice? If moving from hard to soft water and the first thing the bird encounters is odd-tasting water, will it drink as much? Possibly not, so it is worth considering additives in the electrolytes to attract the birds such as aniseed as it helps them to find the water supply. Consider whether the birds have been habituated to the type of drinking system in the pen. For example, if they've



SOPHIA GALLIA

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never seen nipple drinkers before, they may take longer to find water than if they encountered them earlier in life. Liaise with your supplier to ensure familiarity of the poults with the type of drinker used in the release pen before delivery. Food intake also drives water intake, so a major change in food can add to stress.

How often in the rearing cycle is the behaviour and preference of the bird considered when looking to prevent dehydration? Birds drink the majority of their water first thing in the morning,

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with another peak of intake at dusk. When moving birds, it is important to consider timings of delivery around this behaviour. It is also important to consider the affects of bullying and competition between birds and to have more than enough drinking water easy to find and available at times of peak demand, as well as on arrival at a pen.

As birds grow, each one needs more space. If exclusively using nipple drinkers, with chicks you may get away with one nipple per 25-30 chicks, but by release you will need one nipple for between six and nine poults to allow for drinking patterns and intake. It is better to have too much access to water than too little, so many keepers add drinkers in the pens and field shelters as their birds grow.

Water composition varies with geographical region, and within regions quality can also vary with climatic changes. Borehole water is commonly used, and in some areas this can affect solubility of certain medications (your vet will know the issues affecting your particular area). You can have water tested and that information can

be useful when considering the best cleaning agents for biofilm, for the best use of additives such as acidifiers, as well identifying potential risks such as scale deposits affecting nipples, filters and flow-meters. The birds themselves are not too concerned about hardness or softness of water; they prefer a slightly acid pH, but chemical contaminants and bacteria do affect their performance.

In rearing our birds, good practice will mostly yield the best results, but as ever the birds themselves will do their utmost to frustrate efforts to rear them well and avoid disease. At times, they love nothing better than a muddy puddle!

**NOTE IT!**

Mark Elliott is a specialist gamebird vet within the South Downs Veterinary Consultancy. He also uses homeopathy and is a member of the NGO Deer Branch committee.

**CONTACT 01243 779111**  
**MARK@SOUTHDOWNSVETS.CO.UK**  
**WWW.SOUTHDOWNSVETS.CO.UK**

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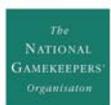
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