Clean Water

An important step for happy and healthy chickens

By Maurice Pitesky DVM, MPVM, ACPVM

That line from *Saturday Night Live's* "Deep Thoughts" skit in the mid-nineties is especially true when talking about water: Chickens need access to clean water all the time, just like their owners do. However, most of us take for granted both water quality and how to get that good-quality water to our chickens via waterers.

"Chickens are just like you and me—except they're chickens."

While we intuitively know that access to clean water is a vital resource that always needs to be available, many owners seem to focus on things such as coop design and feeding options more than water-related issues. We sometimes have to remind ourselves of a basic nutritional fact: Chickens, like most animals, can go weeks without food but only a few days (depending on the ambient temperature) without water.

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So what, exactly, is good quality water?

Water is a nutrient, and many nutritionists would argue that water is the most important nutrient in our bodies. No other substance is as widely involved in the make-up and physiology of the body. In fact, water makes up approximately 60 to 70 percent of all the tissues in the body. Ingesting the proper amount of water is so important that your body tells you that you need water via your thirst response when you are only one-percent dehydrated.

While we all know that water is made up of one oxygen and two hydrogen atoms, there are several other minerals and salts that are dissolved in water, including potassium chloride, which is essential for normal physiological function. This is one reason we should never drink distilled water regularly because it's been filtered of minerals and salts such as sodium chloride. Many undesirable things may be lurking in the water, too, such as heavy metals, nitrates, bacteria, fungi, and parasites. Therefore, it is important to make sure you "know" what is in your water.

If you use municipal water, that work has already been done for you, by law, assuming that your water is used by 25 or more different residences. However, if your water comes from a well or surface water (like a pond), that work has not been done and it is recommended that you have your water tested periodically by a state-certified laboratory.

In addition, ponds are habitat for different wildlife, including waterfowl, who are known carriers of several

diseases including *Salmonella, Pasteurella,* and avian influenza. If you see high loads of wildlife on or in the body of water that you are using as a source of water for your chickens, you should probably find a different source.

Water and extreme weather

Having access to clean cool water 100-percent of the time is essential for your birds overall health. This is especially true during the dog days of summer. Water intake increases by two- to three-times during the summer months. One way to help our chickens stay cool is to supply them with cold water. Ingestion of cold water serves as a heat sink in the digestive tract, thereby lowering core body temp. Keeping the water cold can be as simple as putting ice cubes in the water each day.

The benefits are numerous and pay dividends with respect to egg production. Specifically, chickens that are hot will not eat their normal ration. Consequently, in the summer, many chickens do not get there normal ration and allotment of calcium and phosphorous, minerals that are essential for egg production. In addition, poor appetite can contribute to depressed growth and poor mineralization, resulting in maladies like rickets in young birds and osteomalacia in older birds (which can also lead to bone fractures).

These types of deficiencies result in reduced egg production and soft shelled eggs which are more fragile and subsequently crack more often. Remember, this example started with a water nutritional deficiency and lead to a mineral nutritional deficiency. These type of metabolic "domino effects" are common, and demonstrate the importance of proper nutrition and husbandry.

During the winter, depending on your environment, you may need to heat your coop. If there is water outside for your chickens, you may need to bring fresh water periodically to prevent the water from freezing.

Speaking of husbandry, what are the 'best' waterers?

There are different types of waterers: plates, water bowls, water troughs (linear or channel type), pipeline with nipples, drinkers, deep water pans with guard grills, among others. Overall, though, you can break all the types down to automatic or manual fill. While the automatic methods are much more convenient because of the importance of water, waterers—even automatic ones—should be checked daily. For example, nipple watering systems can freeze up, or, alternatively, leak and cause many of the problems described below.

Think about where to place the waterers. For example, don't place them under your roosts so you can avoid fecal contamination. In addition, regardless of which watering system you choose, the rims should be narrow enough to discourage perching on the system. Clean your watering system often (at least three- to four-times a week in order to inhibit bacterial and fungal growth). Make sure you scrub all surfaces that come in contact with water, and remove any litter or other material that is on or in the watering device.

Cleaning is the foundation of disinfection because the presence of organic matter reduces the effectiveness of the disinfectant. Disinfection should be done every six months, although if you have a nipple system with hoses you should flush out the nipples and hoses at least once a month. There are several disinfectants you can use, including bleach, which should be made by adding four ounces of bleach to one gallon of water. It is important to rinse the equipment thoroughly in order to remove any residues.

Regardless of what watering system you use, it is important to make sure that waterers and piping are not leaking. Moisture content of poultry litter over 35 percent is considered bad and may lead to dermatitis of the foot pads, inflammation of the feather follicles (folliculitis), and proliferation of toxic fungi. In addition, oocysts of *Eimeria* (coccidia) require moisture levels in excess of 25 percent to mature, and wet litter is often associated with outbreaks of this parasitic disease. Necrotic enteritis (i.e. *Clostridium perfringens)* occurs frequently in houses with areas of wet litter due to the high level of the *Clostridium* bacteria that proliferate in the vegetative (i.e. infectious) form, as opposed to the inert bacterial spore form.

The bacterial flora of damp litter favors the production of ammonia. If levels exceed 50 ppm, keratitis (or erosion of the cornea of the eye) and respiratory stress will occur. The ammonia production is not only a problem for your chickens, but can also become a hazard for you. Therefore, as part of your normal daily walk-through, check around the waterers for evidence of leaking and spillage, remove the wet litter, and fix the problem as soon as possible. In extreme heat, you can use water misters to keep the birds cooler, but make sure they aren't making the litter moist to avoid the problems outlined above.

Unlike feed where you want all the birds to have access at the same time, you can have less space for waterers. In general, you want about two inches of space per bird around the waterer. In the summer, due to increased consumption, it may be beneficial to have up to 50-percent more space. From a husbandry and behavior perspective, this can help reduce the overall stress of the flock.

Other important tidbits about water and access to water:

When brooding, chicks should get fresh water and an 8-percent sugar solution for the first 15 hours after they are placed in the brooder.

In avian medicine, antimicrobials can be applied to the target animal by individual injection or oral application (to pet birds or valuable stocks only), or by mass application to the whole flock via drinking water. Having clean water is essential for this water administration. However, not all antibiotics are water soluble, so consult with your veterinarian before adding any antimicrobial into water.

Some vaccines can also be administered in drinking water. For effective application, birds should be kept thirsty for a few hours before given the vaccine-containing water. Clean and cold drinking water should be used for this purpose, and it should be free from chlorine or any drug. Municipal water contains a small amount of chlorine in order to help control for pathogens like *E. coli*. Therefore, if you are vaccinating your birds with this method, make sure to use water that does not contain chlorine, such as distilled water.

Water is an essential nutrient for your chickens. By making it a priority to keep your water clean and easily accessible, you can easily—and inexpensively—have a positive impact on their overall health and well-being.

About the author

Maurice Pitesky is a faculty member at University of California Cooperative Extension (UCCE) with an appointment in poultry health and food safety epidemiology. Pitesky earned his BS in biology from UCLA and his DVM and MPVM from UC Davis. Pitesky is also boarded in preventative veterinary medicine (DACVPM).