

Manage your watering system to promote poultry health

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Growing a successful and profitable broiler flock requires diligent planning and management in all segments of the operation. However, you should pay especially close attention to the watering system. The watering system, and how you manage it, can impact almost every aspect of a poultry operation. Inattention to the system can have disastrous affects on a broiler flock.

Test your water

Wells are the most common source of water for poultry farms. You should test the water from the well on a regular basis, usually annually. Test more frequently if you notice a change in the taste, color or odor of the water; or if there are unexplained illnesses in your family. Even if your source of water is a municipal system, it's a good idea to know what is in the water. Pathogens, substances like chlorine or iron, and the pH rating all can affect the performance of a chicken flock. If you know what is in your water, you can determine the steps necessary to remedy the situation.

The most common source of well contamination is rainwater runoff. Runoff from animal feedlots or stacked litter outside the poultry house can contaminate the well. When locating a well, consider what is near it that might contaminate the water.

Also make sure that all abandoned wells are properly capped. An abandoned well is a direct conduit to the aquifer. Anything that gets into the well shaft can pollute the groundwater and affect the water your active well produces.

Fight biofilm

Regardless how clean your water supply is, bacteria will still find a way into your watering system. Once in the system, the bacteria will attach to any solid surface and begin to exude a sticky substance, creating a biofilm. An established biofilm will grow into an active colony of pathogens that can become a source of disease for your birds. Besides bacteria, the biofilm will attract everything else in the water, including viruses such as avian influenza. In addition, a biofilm can grow to the point where it inhibits the effectiveness of the drinkers by coating internal drinker parts, hindering the way they work.

The best way to rid a system of biofilm is with a high-pressure flushing. Adding chlorine to the water does not work. Research has shown that bacteria in a biofilm are much more resistant to the effect of chlorine than free-floating bacteria.

Ziggity recommends a regular schedule of high-pressure flushing with 1.5 to 3.0 Bars (20 to 40 psi.) pressure to dislodge biofilm. An additional, and highly effective, tool for eliminating biofilm is the use of a hydrogen peroxide-based cleaner. Properly formulated, hydrogen peroxide is a powerful oxidizing agent. The oxidizing action scrubs the interior of the pipe clean of biofilm, making the system ready for flushing.

Drinker management

After you have ensured you are providing your flock with clean water, you must ensure that water is delivered most effectively. That means managing the watering system to ensure the litter remains dry and friable. Litter that is too wet poses a variety of health threats to your flock.

Begin by checking regularly for leaks in the system and for leaky drinkers. Wet spots on the litter indicate a problem. Correct the problem and replace the caked litter with fresh.

Manage the drinker height according to the birds' age and size. You should set the water line so that the birds are drinking at a 50- to 55-degree angle. (Imagine a line drawn from the bird's feet to its beak.) At this angle, almost all of the water discharged by the drinkers goes into the birds and not onto the litter. The birds grow rapidly, so you must adjust the line height daily.

Adjust water pressure based on litter conditions. Wet litter under the drinkers indicates the pressure is too high such that the drinkers discharge more than the birds can drink. In this case, you should reduce pressure until the litter starts to dry.

Dusty dry litter indicates the birds may not have access to sufficient water. This can result in less feed intake and reduced weight gain. If litter under the drinkers is completely dry, increase pressure by five centimeters (two inches) per day until a slight dampness develops. Then stop. Increase pressure as litter readings allow.

Results of wet litter

Friable litter represents the ideal litter condition for poultry houses. Friable litter will clump briefly when a handful is squeezed and then fall apart. Litter that is too wet will clump and stay together, and litter that is too dry will not clump at all. Friable litter usually has a moisture content around 20 to 25 percent.

Here are some of the health problems created by wet litter:

- Wet litter releases ammonia, a natural by-product of the chemical reaction between manure in the litter and moisture. Ammonia is at its strongest concentration at litter level, where the chickens live. Ammonia can dissolve in the fluid around the birds' eyes, causing irritation. In large concentrations, the birds can go blind. In addition, ammonia can irritate the protective lining of a bird's respiratory system, making it more susceptible to disease.

People usually can detect ammonia at levels of about 15 parts per million (ppm). However, prolonged exposure desensitizes the nose. Some growers who have worked in the poultry house environment for years cannot detect ammonia at 50 ppm, a level considered threatening to human health. As a practical matter, you cannot eliminate ammonia but should strive to keep it below 25 ppm.

- Wet litter promotes the growth of a variety of parasites, bacteria and viruses that can harm poultry production.

Coccidiosis infections damage the birds' intestines and digestive systems. These infections are caused by a parasite that thrives in wet litter. Once acquired, coccidiosis is almost impossible to eliminate but maintaining optimum litter conditions helps keep it under control.

Bacteria, such as *E. coli*, salmonella and campylobacter, as well as viruses, such as reovirus and adenovirus, thrive in wet litter conditions. All pose severe risks to the poultry flock and grower profitability.

- Wet litter also attracts flies and rodents. Both pests carry diseases that can be transmitted to the flock. And, rodents can become a direct threat to the birds themselves.

- Wet litter makes the poultry house floor slippery. This contributes to leg deformities in broilers. Wet litter also increases foot lesions, breast blisters, skin burns and scabby areas — all conditions that can result in downgrades at the processing plant.

Conclusion

Maintaining a profitable poultry operation requires you remain ever vigilant on preventing diseases and conditions that harm the birds. A major component in this campaign for health is proper management of your watering system. By paying attention to all facets of the watering system, you take a big step toward ensuring the flock's health.