

# **Maximizing the benefits of enclosed watering systems**

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Over the past 20 years, producers worldwide have moved away from open bell- or trough-type watering systems to enclosed nipple-type systems for their broiler operations. The reason for this move has been improved bird performance coupled with cost savings, most notably in the areas of feed and labor. But, any advancement brings a new set of challenges. Enclosed watering systems with nipple-type drinkers are no different. Here are five ways to maximize the benefits of an enclosed system.

## **Keep watering lines the same distance from the floor**

Make certain the watering lines are the same distance from the floor throughout the house thereby ensuring that the birds drink efficiently and comfortably at all times. Keep in mind that the floor can become uneven because the litter settles or because the litter was not smoothed out after a cleanout. When this occurs, the some drinkers may be too high and while others may be too low. Drinkers that are too high inhibit birds from getting all the water they need. Drinkers set too low result in water spills.

Also, the winch system cables and winch drops sometimes stretch. The result: drinkers do not remain at the correct height. Producers can remedy both situations easily: smooth out uneven litter and adjust winch drops as necessary to maintain a consistent distance between the floor and the drinkers.

## **Eliminate biofilm**

High-pressure flushing helps to prevent biofilm buildup. Biofilm occurs when bacteria attach to the pipes' walls in a drinking system, creating a sticky

substrate. As producers introduce interventions of medications and vitamins, bacteria find an ideal breeding ground in glucose and other nutrient-enriched bases used for the interventions. Additionally, most enclosed watering systems operate on low pressure, providing little turbulence to dislodge this buildup. With biofilm present, the water becomes contaminated. Biofilm also can clog drinkers, causing them to provide insufficient water.

Producers commonly introduce chlorine or other sanitizing agents into the system to kill bacteria. This practice aids in achieving hygienic water, but it does not kill bacteria embedded in biofilm. Nor does it break up the biofilm. The bacterial load in the water quickly returns to the pre-sanitized level.

Flushing with 1.5 to 3.0 bars (20 to 40 psi) pressure immediately after an intervention prevents nutrient-enriched material from attaching to pipe walls. Hydrogen peroxide-based cleaners also have proved to be highly effective in eliminating biofilm. An oxidizing agent in hydrogen peroxide scrubs the interior of the pipe clean of biofilm, making the system ready for flushing.

### **Prevent sediment buildup**

For poultry operations that rely on well water, suspended particles in the watering lines can become particularly bothersome. These particles can end up in the drinkers, clogging them and/or causing them to leak.

Iron is another material that can cause problems. Iron attracts certain types of bacteria that thrive on it, and these bacteria can form biofilm. And, if the iron combines with oxygen to form ferric oxide, the water will take on a reddish brown tinge and have a metallic taste. This could cause the birds to decrease water intake.

Two solutions combat sediment buildup and experts often recommend producers use them in tandem. First, install a filter where the water line enters the house (a 5- to 10-micron cartridge). This will filter out suspended particles; however, producers must regularly check and change the filter to ensure effective operation. The second strategy is to employ a regular schedule of high-pressure flushes to remove all the foreign particles from the lines.

### **Eliminate air locks**

Air locks have the potential for blocking or limiting the flow of water through the pipes, creating a situation where the birds peck the drinker but no water discharges. This has the potential for harming production, and in extreme cases, results in mortality. Air locks form when water in the pipes releases air as the water warms or as water pressure decreases. If the air pocket or lock becomes sufficiently large, it can restrict the amount of water that flows to the rest of the line. This results in the birds drinking the line dry, creating more air in the lines.

Air locks pose the most serious threat in the first days of a new flock. The system operates at very low pressure, too low to overcome the air blockage. Young chicks will activate the drinkers a few times when first placed. If they do not receive water, they eventually give up and mortality occurs.

One solution is to ensure the watering line is straight. A straight watering system does not allow the air to accumulate at high points. In other words, that air is evenly dispersed throughout the watering line and does not pose a problem. If it is impossible to rid the watering lines of high points, installing an air release is of great benefit. High-pressure flushing offers another solution. A regular schedule of flushes forces air from the pipes, as well as any accumulated sediment and biofilm.

## Neutralize sloped floors

Nipple-type enclosed watering systems work best in poultry houses with perfectly level floors. If the watering line parallels the floor, the result is consistent water pressure throughout the house. Consistent pressure allows each drinker to discharge the same amount of water and makes it easier for the producer to manage the watering system and prevent wet litter.

In a house with a sloped floor, the pressure in the line increases as the water moves downhill from the regulator. This results in the drinkers discharging increasingly more water down the line. Depending on how much slope, the resultant increased water pressure can lead to slightly damp to very wet litter conditions, causing very unhealthy and unproductive environment for the birds.

Installing slope neutralizers or pressure reducers at the proper location on the watering line can solve the problem inherent in sloped houses. These devices help to maintain a tolerable and desired range of low-pressure water in the entire system, allowing the birds to drink without spraying the litter with water.

Enclosed watering systems provide significant benefits to poultry flocks. However, producers need to pay close attention to the operation of the system to maximize those benefits, growout after growout.

*Ziggity Systems, Inc. is the only manufacturer 100 percent focused on poultry watering for improved performance. For more information, write Ziggity Systems, Inc. at 101 Industrial Parkway, P.O. Box 1169, Middlebury, Indiana 46540-1169 USA, call +1 574.825.5849, fax +1 574.825.7674, or visit its Web site at [www.ziggity.com](http://www.ziggity.com).*