Clearing the air: the difference between water usage and water consumption

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More than a few experts in the poultry industry assume they can determine how much water a flock is consuming simply by looking at the water meter. That unfortunately is not true, and that assumption can lead to faulty practices.

The water meter actually records water usage: that is, the amount of water flowing into the house at a particular time. It does not record what happens to that water — whether the birds drink it; whether it is spilled onto the litter; whether it evaporates off the trigger pin; or whether it is used for the evaporative cooling cells. No one has invented the machine that accurately measures how much a bird drinks.

Where this distinction becomes important is in the commonly held perception that water stimulates feed consumption, which in turn leads to higher weights. While this is true, it has caused some producers to reason that if they increased the pressure in their water lines, the birds would drink more. This is faulty thinking, however; and it only leads to wet litter and ammonia releases, which can harm production.

Ziggity recommends a better use for the water meter. Producers should keep a log of water meter readings. Take the readings daily and at about the same time of the day. This will give you an accurate picture of the water usage at that time. Birds drink at different rates throughout the day. By taking the reading at about the same time each day, you won't be comparing peaks and valleys of water usage.

Any substantial increase or decrease in water usage indicates there is a situation in the poultry house that needs your attention. A large increase in water usage often signals leaking drinkers or lines. A substantial decrease could indicate a disease is causing the birds to not drink as much.

You should always take your water meter readings in conjunction with litter readings, where the condition of the litter under the drinkers is noted. During the drinking process, birds can only retain a certain amount of water in their beaks. If more water discharges from the drinker than what the bird can retain, the oversupply spills onto the litter. The best way to manage your birds' water intake is to control pressure at optimum levels — as determined by litter conditions — not at maximum levels.

For the first week of a chick's life, you should adjust the water pressure to the absolute minimum. Virtually all manufacturers of nipple-type drinkers without catch cups recommend using very minimal pressure settings for day-old chicks. This is because the young chicks simply cannot trigger the drinker with a higher pressure. Ziggity recommends settings as low as 2.5 cm (1 inch) of column height pressure.

If after the first week the litter under the drinkers is too wet, do not turn up the pressure. Stay with the absolute minimum until the litter becomes dry under the lines.

On Day Eight, select one drinker line, preferably the one that is the most difficult to keep dry. Adjust the column pressure 1 inch (2.5 cm) higher in the test line. Do not adjust the other lines. Wait for about 24 hours and examine the litter immediately under the drinkers. If the litter is still dry, adjust the column pressure in the other drinker lines up by 1 inch (2.5 cm). Repeat this process until a slight dampness develops under the test line. Repeat this process throughout the growout.

If for any reason, litter becomes wet under the drinker lines, immediately reduce column pressure by 50 percent. Wait for the litter to crust over dry and then repeat the above procedure.

The consequences of wet litter and high ammonia levels cannot be over emphasized. People usually can detect ammonia at around 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. The U.S. Environmental Protection Agency says humans should not be exposed to 25 ppm for eight hours or longer and exposure to 35 ppm should not exceed 15 minutes.

The ammonia is at its strongest concentration at litter level, where the chickens are. The ammonia will dissolve in the fluid around the eyes, causing irritation. In greater concentrations, the birds can go blind.

Even at a level of 5 ppm (undetectable to the human nose), the cilia in the trachea are destroyed. Cilia are hair-like projections that trap dust and particles. As this happens, the trachea lining erodes and becomes susceptible to respiratory viruses or bacteria.

Respiratory diseases pose a major threat to poultry operations. Some, like the Newcastle virus, can rapidly sweep through a poultry house and result in nearly 100 percent mortality.

However, not all respiratory diseases result in mortality. Respiratory diseases often are a complex of viruses and bacteria. This makes prevention and treatment far more complicated. And, if the disease shows few or no symptoms, the performance of the flock can be significantly hurt without the poultry farmer even being aware of the problem. Even though farmers are vaccinating most

flocks, respiratory lesions still turn up at slaughter on a regular basis; and these defects hurt weight gain and carcass quality.

Other drawbacks of ammonia and wet litter include increased foot lesions, breast blisters, skin burns and scabby areas. Any disease in the birds takes feed energy away from meat production to fight off the condition.

Wet litter conditions encourage other pathogens to grow. Among the more serious diseases fostered by wet litter are avian influenza, gangrenous dermatitis, gumboro, botulism, E. coli and salmonella. Wet litter also encourages coccidiosis.

By understanding the difference between water usage and water consumption, you can better understand what is taking place in your poultry houses. This, in turn, will lead to you make better management decisions.

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****.*