

Water System Check-Up

When was the last time a check was conducted on the farm water system? If the answer to this question is "I don't know" then it is something that should be conducted right away. The house and farm water system should be checked on a regular basis to ensure that adequate quantity and quality water is available. Water, along with temperature management, good air quality, clean formulated feed and protection from disease are the five basic needs of poultry to optimize bird performance.

When checking the water system, the complete system should be evaluated. This means starting at the well and working through to the end of the drinker line. Below is a list of items that should be considered when checking the water system on a poultry farm.

1) Well:

At the well, a proper well head should be in place to ensure that rain water and/or runoff does not contaminate the water at its source. A water quality test should be conducted regularly (about once a year) to determine the mineral content, pH and hardness. Low or high pH, high mineral content, or a combination of elevated minerals can impair equipment function and efficacy of vaccines or other medications administered through the drinking water. For example, iron in the water from wells with high iron concentrations can be oxidized. The resulting

material is a brownish-reddish particulate that can plug water filters and result in leaky drinkers. It is not uncommon in Georgia to speak to producers that have to change water filters every 2-3 days during periods of high water usage. Unfortunately, oxidized iron is not the only thing that can plug water filters. Oxidized manganese, magnesium or sediment can cause regular changes of water filters. If a water test indicates a mineral problem, a water treatment professional should be consulted to determine what steps are required to improve the water quality.

Depending on state regulations, most states require that new wells be tested for microbial contamination and normally this specifically looks for the presence of coliforms which can indicate fecal or runoff contamination. Water devoid of any microorganisms is desired, because even nonpathogenic organisms such as iron bacteria can cause the formation of biofilm which can restrict water flow and even stop up nipples on drinker lines. If bacteria are present, consult with a well professional or the county agent to determine the best protocol for shock chlorinating the well.

Water volume and availability are important. When the water use on a poultry farm is examined, the water used by the evaporative cooling system during hot weather can be as much as three times greater than water consumed by the birds. Therefore when digging wells and determining how much water is needed

by the farm the equation should include evaporative cooling pads, fogging nozzles, bird water consumption and the number of poultry houses. Pipe sizing should be adequate to supply both the evaporative cooling needs as well as the drinking water. Information on pipe sizing can be found at www.poultryventilation.com. The water pressure should be high enough at the well to ensure 60 psi at the house. In most cases, this means that water pressure at the well should be 10 to 20 psi higher depending on the well location and orientation to the house. While 60 psi at the house is desirable, it should be noted that the pressure going to the drinker lines may be different and the drinker manufacturers' guidelines should be followed to prevent water line regulator damage.

2) House water panel:

Water management of the water system at the house water panel involves monitoring water pressure at several locations. Some house environmental controllers and alarm systems can be wired with gauges/sensors to detect drops in water pressure. Water pressure coming from the well should be checked. Water pressure decreases after Figure 2. Water panel with two water meters, flowing through the water filter, pressure regulator and medicator and as a result should be monitored prior to entering the house. Water pressure for individual drinker systems may vary, but in general it is somewhere around 20 to 30 psi. Water



pressure reduction at the filters should be monitored very closely and filters should be rinsed or replaced as they become clogged with foreign material.

3) Medicator pumps.

Totally enclosed water systems have been adopted by the poultry industry. One of the biggest benefits from this type of system is the cleanliness and ability to prevent bacteria and other foreign materials from entering the drinking water. Birds obtain the water directly from the water system on demand by pushing a pin located on the bottom of the drinker line. Mediator pumps are a normal component of most poultry house water systems and are used to deliver vaccines, medications, water treatment and sanitation products. However, this is a weak point in the system. Open five gallon buckets are the normal container used to mix stock solutions to be delivered through the drinker system and are a potential contamination source of the drinker line. A covered container should be used to prevent foreign material from being introduced into the water line.

4) Drinker lines:

The regulator, water pipe, nipple and standpipe are all components of the water line that should be examined and maintained. For the most part these components are internal with the exception of the standpipe which is usually a clear tube containing a ball that floats to monitor water pressure with an opening at the top to allow air in the lines to escape. This opening is a potential spot for foreign debris such as dust to enter the system. It is not unusual to observe stand pipes in broiler houses that are so dirty that the ball can not be seen. Efforts should be made to regularly clean and sanitize the drinker line.

5) Water meters:

Most houses have water meters on the drinker line. Some farms have the water meters wired into the environmental controller which can monitor daily water consumption and keep the history for the flock. The use of multiple water meters can provide additional information that can be utilized by producers in the daily management of the house and farm. This topic has been discussed in several newsletters that can be found at

www.poultryventilation.com. Water consumption should be monitored daily, because sudden increases or decreases can indicate issues with either the birds (environmental stress, disease) or the water system (leaks, air locks, water restriction due to residue buildups).

Regular maintenance and good drinker line management during and in between flocks can improve both drinker and bird performance while extending equipment life. Care should be taken when running products through the drinker line to ensure that none of the internal parts are damaged and that no microorganisms are able to thrive. Before applying any water treatment a water test should be conducted. Application of treatments to control microbial growth, such as chlorine, can cause precipitants to form in water that has high iron or manganese concentrations. This will clog filters and possibly result in leaky drinkers neither of which will be good for bird performance. Wells should be tested routinely to ensure that water quality will not affect drinker function. By taking some time to do these steps broiler and drinker line performance should be optimized

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USPOULTRY Coming Events

Environmental Management Seminar

March 5-6, 2008
Atlanta, Georgia
Embassy Suites Hotel

Feed Mill Management Seminar

March 26-27, 2008
Nashville, Tenn.
Doubletree Hotel

Human Resources Seminar

April 21-23, 2008
Point Clear, Ala.
Grand Hotel Marriott

National Breeders Roundtable

May 8-9, 2008
St. Louis, Missouri
Airport Marriott Hotel

Poultry Processor Workshop

May 21-22, 2008
Atlanta, Ga.
Embassy Suites Hotel

Financial Management Seminar

June 23-25, 2008
Myrtle Beach, South Carolina
Hilton Myrtle Beach

Hatchery-Breeder Clinic

July 15-16, 2008
Birmingham, Ala.
The Wynfrey Hotel

Information Systems Seminar

July 28-30, 2008
Myrtle Beach, South Carolina
Hilton Myrtle Beach



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