Poultry News
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from the team at AgriHealth

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Effective Drinker Management in Poultry Sheds

Effective drinker maintenance is essential for poultry health, productivity, and the quality of litter in poultry sheds. Regular inspection, cleaning, and proper adjustment of the drinker system (height and pressure) ensure the birds have access to clean, fresh water while maintaining dry and hygienic litter. Poor maintenance can lead to various problems, especially in water quality and litter condition.

Advantages of Proper Drinker Maintenance on Litter Quality

Reduced Wet Litter: Proper drinker maintenance prevents leaks and overflows, which helps maintain dry litter. Dry litter reduces the risk of ammonia buildup, leading to better air quality and healthier birds.

Improved Hygiene: Clean drinkers reduce the introduction of bacteria, viruses, and other contaminants into both water and litter, promoting a healthier environment for the flock.

Healthier Birds: Proper hydration is vital for bird health. Clean, accessible water reduces stress, enhances growth, and boosts overall immunity, reducing the spread of diseases in the shed.

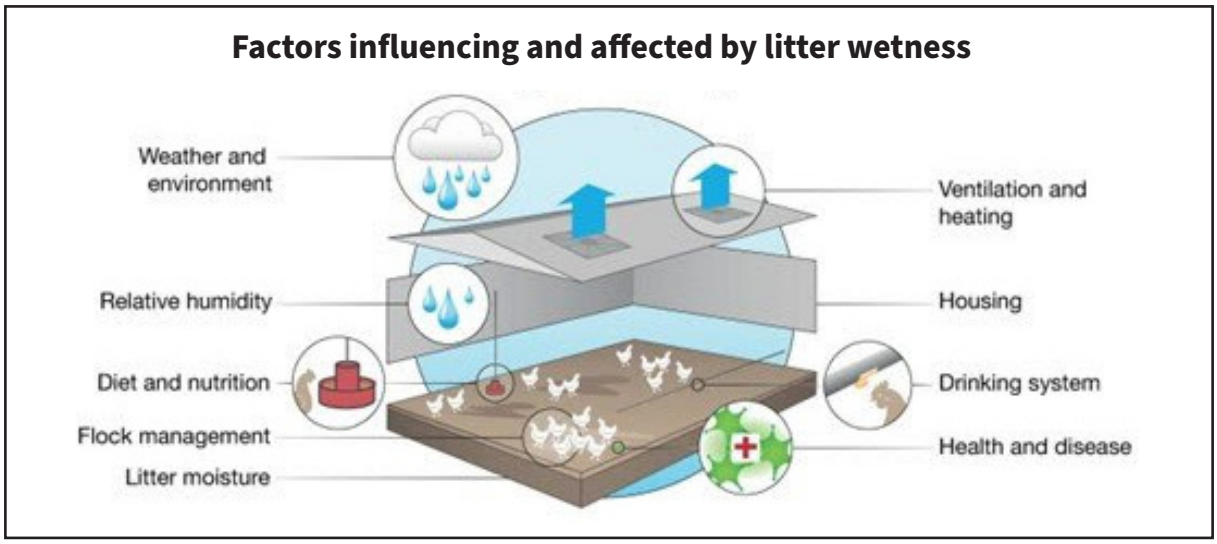
Problems in Litter Condition when Maintenance is Neglected

Increased Moisture in Litter: Leaky or malfunctioning drinkers lead to excessive water spillage, making litter wet and promoting faster breakdown. This creates a conducive environment for harmful bacteria and fungi.

Ammonia Build-Up: Wet litter leads to anaerobic conditions where ammonia is produced, causing poor air quality and respiratory problems in the flock, ultimately affecting growth and productivity.

Increased Contamination Risk: Poor maintenance and unclean water lines can result in contamination of drinking water, which can seep into the litter and increase pathogen load, further compromising hygiene. Also can lead to biofilm build-up in the drinker lines.

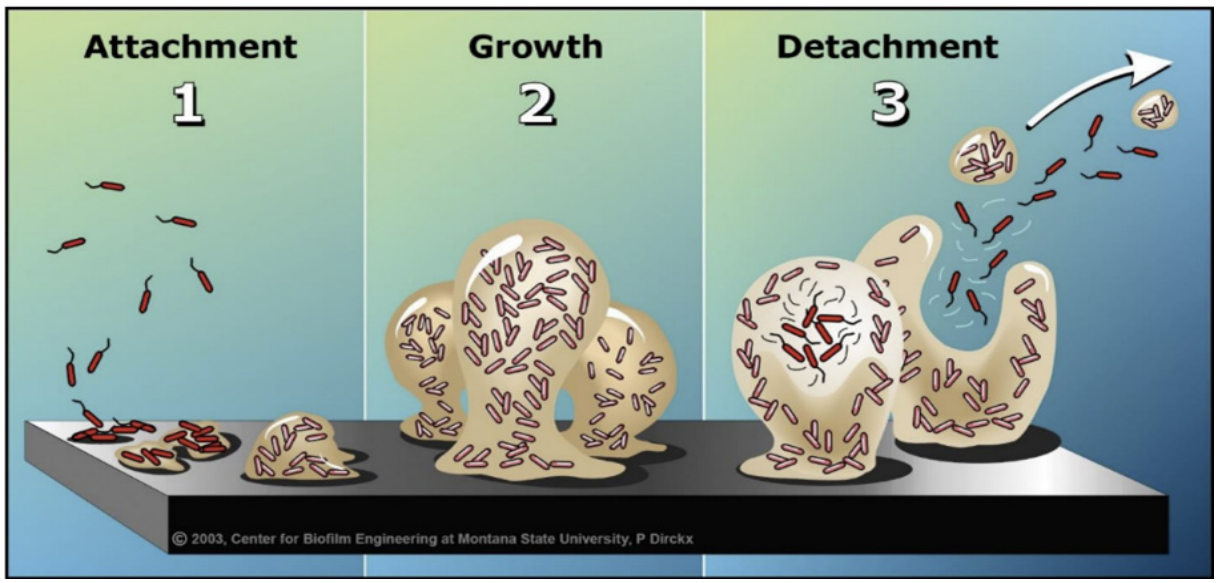
Reduced Productivity: Birds exposed to high humidity, wet litter, and poor air quality experience stress, leading to reduced egg production, slower growth rates, and weakened immune systems.



Biofilm Build-up in Non-sanitised Waterlines

Biofilm formation on drinkers in poultry sheds begins when microorganisms such as bacteria, fungi, and algae attach to the surfaces of the drinker lines. The constant presence of water, along with organic material like feed particles and waste, provides an ideal environment for microbial growth. These microorganisms secrete extracellular substances that form a sticky matrix, allowing them to adhere to surfaces and multiply. Over time, the biofilm thickens, creating a protective layer that is resistant to cleaning and sanitisation. As the biofilm grows, it can harbour harmful pathogens, contaminate the water, and reduce water flow, leading to poor water quality and potential health issues for the birds.

Biofilm formation in three steps



Step one (1)

Free floating bacteria find a surface they can adhere onto. If conditions are right, they will start to produce the glue-like substance called extrapolymeric substance (EPS).

Step two (2)

The production EPS makes the bacteria able to form a complex 3-D community in the matter of hours.

Step three (3)

The biofilm has grown so large that the bacteria can't sustain themselves anymore and must break free to search for more nutrients elsewhere. This is happens as either large groups of bacteria or singular bacteria.

'Biofilm Basics: Section 1 - Center for Biofilm Engineering | Montana State University' n.d.

Pathogens that Grow due to Lack of Water Line Sanitisation

- **Salmonella:** A major pathogen that can be transmitted via contaminated water, leading to foodborne illness in humans and poultry diseases, which can significantly reduce flock health and productivity.
- ***Escherichia coli (E. coli)***: This bacteria thrives in unsanitised water lines and can cause severe gastrointestinal infections, leading to poor growth and high mortality rates in poultry.
- **Campylobacter:** Often found in contaminated water, it is a common cause of enteritis in poultry, leading to diarrhea, reduced feed intake, and weakened immune systems.
- ***Listeria monocytogenes:*** A pathogen that can grow in poorly maintained water lines, Listeria can lead to nervous system disorders and even mortality in poultry.
- ***Pseudomonas aeruginosa:*** A waterborne bacteria that can thrive in moist conditions, this pathogen can infect poultry's respiratory and gastrointestinal systems.
- **Fungal Growth (e.g., Aspergillus):** Damp, unsanitised water lines are also prone to fungal infections, which can cause respiratory issues in poultry, particularly in chicks.
- ***Enterococcus cecorum*** forms biofilms by adhering to surfaces, proliferating into microcolonies, and secreting a protective matrix. This biofilm formation enhances the bacteria's resistance to antibiotics and host immune defences, leading to chronic infections. These infections can cause diseases like arthritis and spondylitis, impacting poultry health and production.

In conclusion, proper drinker maintenance is vital not only for maintaining clean and healthy water for the birds but also for ensuring that the litter remains dry, reducing ammonia emissions and pathogen growth. When water lines are neglected, pathogens can proliferate, leading to serious health problems and deteriorating litter conditions, which affect both the flock's well-being and farm productivity.

Please contact: **paul@agrihealth.co.nz** or **nic@agrihealth.co.nz** for more information