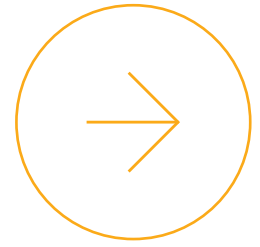


Reducing litter moisture under drinkers



Flushing and cleaning drinker lines

How biofilm, sediment and scale affect litter conditions

A build-up of biofilm, sediment or scale in drinker lines and nipples can restrict flow or cause uneven water pressure, particularly at times of peak demand.

It can also prevent drinker nipples from sealing, contributing to leaks even when chickens aren't drinking. Biofilm and sediment can harbour bacteria and pathogens that affect chicken health and growth and can lead to wet droppings.

Drinker line leaks and wet droppings will make the litter wetter, causing caking throughout the shed but particularly underneath the drinker lines.

Management actions

Sanitise and clean the drinker system between flocks

The entire drinker system should be thoroughly cleaned, de-scaled and sanitised between batches to remove build-up and ensure water quality for the next flock. The drinker system should be regularly flushed during the grow-out to ensure cleanliness.

Minimum requirements

- Sanitise water lines between flocks.
- If scale is an issue, conduct a separate acid treatment.
- Inspect water lines and nipples and repair or replace if damaged.

Best practice

- Drain and clean drinker system and header tanks before each batch.

- Prepare the amount of sanitising solution required to fill your drinker lines. The following table can be used as a guide for 20 mm drinker lines (volume will vary depending on the size of the supply line and exact drinker pipe dimensions).
- Water lines should be designed so they can be opened and drained completely when cleaning is complete.

Approximate amount of water required to flush 20 mm drinker lines (Litres)

		Length of water lines (m)			
		100	125	150	175
Number of drinker lines	1	46	57	69	80
	4	185	230	275	320
	5	230	285	345	400
	6	275	345	410	480

Flushing

Flush the drinker system regularly to ensure it stays clean throughout the batch and water remains fresh and clear of biofilm and sediment.

The drinker system and water will stay cleaner if sanitiser is used daily at recommended rates (except when vaccines or other medications are administered). Acids may also be needed, depending on water quality. An automatic dosing system could make it easier to add sanitiser and other water treatment products.



Minimum requirements

- Water lines should be flushed weekly to remove particles that may interfere with the water flow.
- Water lines should always be flushed after administering medications or supplements to prevent biofilms from developing.
- High-pressure flushing requires adequate volume and pressure. Usually 100–200 kPa (1–2 bars or 14–28 psi) of water pressure will create the velocity and turbulence required to remove biofilm and scale from the pipe.
- Water lines should be flushed when the water temperature is over 30 °C to reduce water temperature. Otherwise water consumption may be reduced.
- Use additional piping to remove flushed water from the shed rather than letting it spill onto the litter.

Best practice

- Flush water lines three times per week, depending on water quality.
- If scale is a significant issue, treat water lines with an acidifier before flushing.
- If biofilms are a significant issue, treat water lines with a sanitiser before flushing.
- Automatic flushing systems are available.

Follow these steps to clean the water lines

1. Open the water lines so they drain completely.
2. Begin pumping the cleaner or sanitiser through the water lines, diluting the product if required.
3. Look for signs of the cleaning product (e.g. foaming or suds) in the water as it leaves the drain line.
4. Once water lines are filled with the cleaner, close the tap and leave the product in the lines for the time recommended by the manufacturer (more than 24 hours if possible).
5. Flush the cleaner from the water lines after the holding period. Water used to flush the lines should contain the level of sanitiser normally used in the drinking water for the birds.
6. After cleaning, sanitising and flushing the system, the water supply should be fresh and chlorinated (3–5 ppm in the drinker furthest from the source*). If using an oxidation-reduction potential (ORP) meter, the reading should be a minimum of 650 mV.
7. Lines from the water well to the poultry buildings should also be cleaned and sanitised between flocks. It is best not to flush these outside water lines through the internal water lines. Connect a water hose to the medicator faucet to drain the outside lines.

*Dependent on your integrator's requirements

More resources

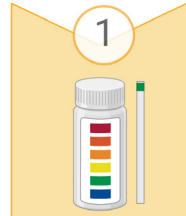
- Drinker management video on the Chicken Meat RD&E YouTube site https://www.youtube.com/watch?v=_rb4kYlo3mw
- Industry best practice manual for water quality management and sterilisation on-farm – AgriFutures (2020) <https://www.agrifutures.com.au/product/industry-best-practice-manual-for-water-quality-management-and-sterilisation-on-farm/>
 - page 60 for 'Flushing'
 - page 61 for 'Drinking system cleanout between flocks'
 - page 103 for on-farm water quality testing kits.
- Water Line Sanitation – Aviagen (2021) https://en.aviagen.com/assets/Tech_Center/Broiler_Breeder_Tech_Articles/English/AviagenBrief-WaterLineSanitationUpdate-2021-EN.pdf
- Broiler signals <https://www.broilersignals.com/en/>



How to clean the water lines

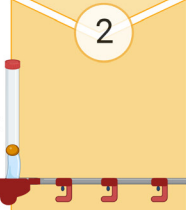
Test your water

- If the water contains more than 90 ppm combined calcium and magnesium, you will need to include a 'descaler' or an acid in your cleaning program
- Based on results choose an **appropriate cleaner/sanitiser** that will do an effective job.



Open and drain water lines

- Drain water from lines completely
- Tip: Get advice on selecting the best cleaner/sanitiser products depending on your drinkers and water quality



Fill lines with cleaner/sanitiser

- Dilute the product if required
- Observe water as it leaves the drain line for signs of product such as foaming or suds.



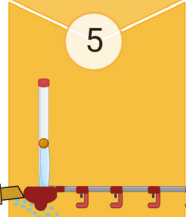
Give product time to work

- Once filled with the product, leave in the lines following manufacturer recommendations
- Tip: Some products will produce gas bubbles that can increase pressure in the line and need to escape so leave the line open.



Flush cleaner from water lines

- Flush the product from water lines after recommended holding period
- Water used to flush lines should contain normal level of sanitiser used in the drinking water for the birds



Water should now be fresh and chlorinated

- After cleaning, sanitising and flushing the water supply should be fresh and chlorinated
- 3-5 ppm of chlorine in the drinker furthest from source



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Information in this fact sheet has been adapted from the Industry best practice manual for water quality management and sterilisation on-farm (<https://www.agrifutures.com.au/product/industry-best-practice-manual-for-water-quality-management-and-sterilisation-on-farm/>).



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