

## Deep cleaning farm drinking systems



This factsheet takes you through the steps required to deep clean a farm drinking system. Read the entire factsheet thoroughly before you start a deep clean.

Adequate, good quality drinking water is a precious resource, required for meeting welfare legislation and achieving optimum physical performance. It is important to protect water supplies from microbiological contamination and the build-up of biofilm (slime), which can harbour many types of bacteria. Biofilm will often occur in untreated non-mains water, or where water can rest in pipes or tanks, especially in warm environments such as pig housing. Keeping bacteria levels below set limits may also be a requirement of farm assurance schemes.

Once established, biofilms are difficult to eliminate and it may be necessary to carry out a deep clean, also referred to as a shock treatment, of the system. However, it is important to speak to your veterinary surgeon/adviser before choosing this course of action. If deep cleaning is carried out incorrectly, the water may not be safe for your pigs to drink and you may end up wasting time and money.

Refer to the '**Deep cleaning farm drinking systems: a shock water treatment guide**' for an in-depth explanation of water quality, biofilms, water treatment and water management.

### When should you carry out a deep clean?

- If you are implementing a new drinking system
- Every time a water distribution system is opened for repairs or maintenance
- Following any possible contamination, e.g. floodwater or surface run-off
- Between batches, when the room and water system remain unused for a short period of time
- If a system hasn't been cleaned for more than a year and where the risk of blockages and component failure is high
- When routine water sampling indicates high microorganism or mineral contamination

## Before you start

- Empty the rooms of pigs and isolate the waterlines from the rest of the system. Seek the cleaning product supplier's guidance or consider using another sanitising method if the building is in continual use and waterlines cannot be isolated
- Before using chemicals, familiarise yourself with the Material Safety Data Sheets (MSDS) and take the necessary safety precautions
- Consider who is going to interpret the results, this will usually be your veterinary surgeon/adviser
- Produce a full plan of the water system or ask for one to be supplied and use to design a cleaning regime, which will effectively clean all system elements
- Set aside enough time for the recommended treatment and cleaning process, this may take 12 hours or more; the supplier/product guidelines will advise on recommended dosage times
- Different products target different types of biofilm, agree with your veterinary surgeon/adviser which products are most suitable for treating the biofilm in your system; refer to Table 2 of 'Deep cleaning farm drinking systems: a shock water treatment guide' for some of the options
- Follow the supplier's instructions, wear appropriate Personal Protective Equipment (PPE) and use signs to indicate when a system is under treatment

### Equipment list

- A one-litre jug (graduated and marked clearly at 500 ml)
- Stopwatch or phone with timer function
- Disposable gloves
- Clean scoop or small bucket
- Safety goggles
- Pegs to help drain water
- Camera/mobile phone to take photos of pen and infrastructure
- Tools to dismantle pipes, drinkers, etc.
- A brush to clean around the surface of the pipes and drinker fittings
- Spare parts, PTFE tape and/or pipe sealant in case emergency repairs are necessary
- A full list of products can be found in the 'Deep cleaning farm drinking systems' guide

## Deep cleaning an empty room

1. **Complete a site survey:** Record the full layout of pipes from source to each drinker. Identify any dead ends, unused pipework or slow-flowing areas. This is the ideal time to familiarise the operator with the necessary training.

2. **Take water samples:** The frequency of testing the water is the most important factor to enable users to properly understand microbiological levels. Refer to our Standard Operating Procedure (SOP): **Water sampling for microbiology, minerals, flow rate and water temperature**, or **Water sampling for microbiology (farm assurance requirement)**
3. **Isolate waterlines and network preparation:**
  - A health and safety risk assessment must be conducted before cleaning tanks and systems; working at height, working on pressurised systems and the need for PPE are particular areas to be assessed
  - Turn off, drain and disconnect the header tank
  - Inspect and pressure wash inside the tank and drain again to remove gross spoilage and sediment
  - Reconnect header tank and refill
  - Turn off supply to header and pipework again
4. **Apply shock treatment:** Review material safety data sheets and COSHH data, and wear appropriate PPE.
  - Handle pipes and treatment in accordance with good industrial hygiene and safety practice; refer to **Health and Safety for Pig Keepers**
  - Fill header tank with suitable steriliser, at the correct concentration for the volume of water in the system, following the manufacturer's advice. Suitability will depend on the degree of limescale or biofilm present. Refer to datasheets and seek professional advice from suppliers for the suitability of products for individual systems, also ensure all health and safety precautions have been considered
5. **Flush the system thoroughly:** It is important to flush the main supply pipes once the organisms have been dislodged or dissolved to remove them from the system.
  - Empty the header tank of sanitiser
  - Flush the supply pipes at a high flow rate to help dislodge any biofilm. A flush valve at the end of the main line would aid in obtaining high flow rates through horizontal pipe runs
  - Large storage tanks should be emptied at least annually, if not after every batch, and sanitised, using a suitable water disinfectant, depending on the type and degree of contamination observed
  - Heavy sediments need to be physically removed from tanks
6. **Turn on water supply:**
  - Turn on water supply to header tank
  - Run clean water through the system to flush out the sanitiser
  - Check the system for leaks and that it holds water under pressure
7. **Review site and sample water regularly:** A regular review of monitoring and treatment requirements is essential. Any change in sampling results should be kept on record for continuous planning

## Ensuring deep cleaning is effective

- Regular reviews and sampling are important to make sure cleaning methods are working and that pathogens are not carried over on batch systems
- Correct sampling (using the SOPs referenced above) at crucial points in the supply will indicate whether a deep clean has been successful and where contamination builds up; three samples should be taken at each point, as variation is common when testing for bacterial organisms
- An improved flow can indicate whether blockages have been removed through deep cleaning. A reduced flow rate, especially at the end of the line, can indicate that a deep clean is needed

## Health and safety statement

Before implementing a deep clean, conduct a health and safety risk assessment; this will cover, for example, working with water under pressure, chemicals and proximity to electrical equipment and supplies. A Control of Substances Hazardous to Health (COSHH) assessment will be needed where any chemicals are involved.

Always refer to the individual cleaning product supplier's instructions when using hazardous substances and ensure you are complying with company health and safety procedures. Appropriate PPE must be worn.

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