

Water supply



Figure 1. Nipple drinker before and after a deep clean

Adequate, good quality drinking water is a precious resource, required for meeting welfare legislation and achieving optimum physical performance. Water is essential for nearly all of a pig's bodily functions, including:

- Temperature regulation
- Waste excretion
- Absorption of nutrients
- Tissue growth

Severe water deprivation can result in death. Minor dehydration can result in reduced feed intake, lower daily gain, poorer feed conversion, reduced milk production, lower weaning weights and aggression between pigs. Eighty-five per cent of growing pigs drink within 10 minutes of eating, however, when performance problems are being investigated, feed is often analysed, while the water supply is frequently overlooked.

It is a legal requirement that all pigs have access to good quality, clean drinking water.

The Welfare of Farmed Animals (England) Regulations 2007, and the Code of Recommendations for Livestock: Pigs (2003) state that "All pigs over two weeks of age must have continuous access to a sufficient quantity of fresh drinking water".

A revision of the Code of Recommendations for Livestock: Pigs is expected in 2019.

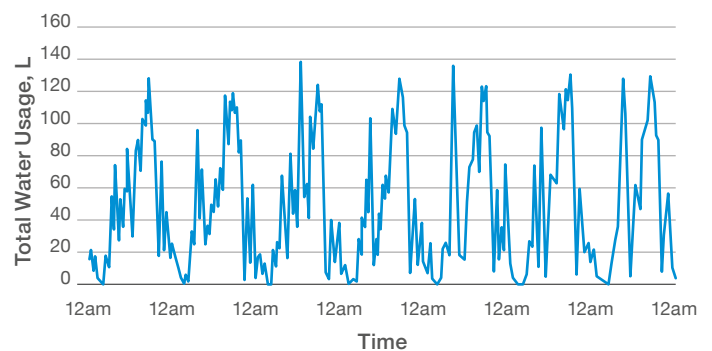


Figure 2. Drinking pattern behaviour displayed by ad-lib fed pigs

Source: Optimising the Use of Antimicrobials – Preparing the industry for in-water delivery in the short term and improving hygiene and more effectively targeting medication in the longer term (pork.ahdb.org.uk/media/274247/51510014_ft014_raft-solutions-ltd-water-report_approved_september-2017.pdf)

Availability

- Ensure pigs have access to clean water at sufficient drinking points (Table 1)
- Check daily that all drinkers are clean and working, providing at least the minimum daily requirements (Table 2)
- Easy and prompt access to water is essential to prevent dehydration. For the first few days after weaning, consider having additional drinker points, e.g. turkey drinkers. At weaning (around 30 kg), pigs need to consume 10% of their body weight in water each day, i.e. 3 kg or 3 L

Trials have shown that, in the event of a disease outbreak, a change in water consumption will often be apparent before clinical signs are observed

- Monitoring water supply to a building can help establish basic usage patterns. This can make it easier to notice changes in drinking behaviour, e.g. as a result of a blockage, leak, poor water quality (taste and odour), change of feed, environmental temperature or disease outbreak
- To ensure the system is working correctly, check flow rates of nipple and bite drinkers, both mid-batch and between batches. This is a simple task requiring a large measuring jug, a watch and a minute of your time. For full guidance, see further information
- Check all drinkers when measuring water flow rate, as there is often a difference between the flow rates at the furthest drinkers compared with those closer to the supply. A significant difference between the first and last drinkers could indicate a blockage or a problem with the water pressure
- Water pressure can be affected by factors such as: header tank height, pipe diameter, drinker settings, cleanliness of filters, deposits within the pipeline, e.g. biofilm (slime), and sediment

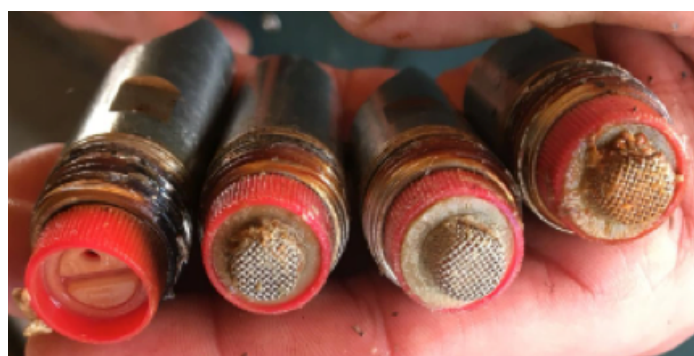


Figure 3. Blocked nipple drinker filters

- Ensure wastage is minimal and repair any leaking pipes or drinkers promptly. Remember, leaking drinkers will add to slurry volume and are expensive
- Drinkers must be at the correct height for the size of pigs (Table 3)
- All pigs must be able to access drinkers at all times. This might require height-adjustable or various drinkers at different heights to enable both the smallest and largest pigs to reach

- Drinkers should be positioned within 1–2 m from the feeders and should be accessible to pigs without the need to disrupt other lying or feeding pigs
- With combined feeder and drinker stations, it is also good practice to have separate, individual drinkers available, which will give access to some pigs while this will enable pigs to access them while other pigs are feeding
- Wet-fed pigs still require a separate source of clean drinking water

Table 1. Drinker requirements

System	Minimum requirement (grower/finisher pigs)
Nipple/bite drinker (restrict fed)	1 per 10 pigs
Nipple/bite drinker (ad-lib fed)	1 per 15 pigs
Bowl (restrict-fed)	1 per 20 pigs
Bowl (ad-lib fed)	1 per 30 pigs
Trough space (<35 kg)	30 cm for every 25 pigs

Source: Defra Code of Recommendations for the Welfare of Livestock 2003

Table 2. Daily water requirements and flow rates

Weight of pig (kg)	Estimated daily requirement (L)	Minimum flow rate (nipple drinkers) (L/m)
Newly weaned	1.0–1.5	0.3
Up to 20 kg	1.5–2.0	0.5–1.0
20–40 kg	2.0–5.0	1.0–1.5
Up to 100 kg (finishing pigs)	5.0–6.0	1.0–1.5
Sows and gilts (pre-service and in-pig)	5.0–8.0	2.0
Sows and gilts (lactation)	15–30	2.0
Boars	2.0–5.0	2.0

Source: Defra Code of Recommendations for the Welfare of Livestock 2003

Table 3. Recommended drinker heights

Liveweight (kg)	Height from floor (mm)	Height from floor (inch)
7–8	250–350	10–14
19–35	350–450	14–18
35–60	500–600	20–24
60–95	600–750	24–30
Maiden gilts	750	30
Dry sows/boards	800–900	32–38

Source: Defra Code of Recommendations for the Welfare of Livestock 2003

Quality

- The quality of the water, sourced either from mains or private supply, should meet acceptable microbiological and mineral levels. Hygiene is a critical factor in ensuring pathogen counts stay within acceptable parameters. For further guidance, see AHDB factsheet ***Survival time of pathogens in water***
- It is important to test water at source, header tank and at the end of the line. Water at source may be acceptable, even for human consumption, but the environment within a water system provides ideal conditions for harmful pathogens to grow
- Water should be tested annually as a minimum, but ideally before pigs enter a building, if on an all-in all-out system
- Microbiological, physical and chemical factors will affect water quality. If there is any doubt concerning quality or appearance of water, samples should be sent for analysis
- Routinely check the cleanliness of the complete water system, including the header tanks, pipework and drinkers. Open pipework, take off a drinker (Figure 1), feel/look for biofilm (slime) and sediment within the pipe
- Systems should be periodically cleaned and flushed through to remove build-up of solids such as iron or limescale and prevent the build-up of biofilms (slime)
- Check flow rates from all drinkers after flushing. Shock water treatment (a deep clean) may be required for heavily contaminated systems. For further guidance, see AHDB factsheet ***Deep cleaning farm drinking systems***
- Header tanks should be completely covered with intact, secure lids and there should be insect screens covering overflows to prevent contamination

Further information

- AHDB Standard Operating Procedure: ***Water sampling for microbiology, minerals, flow rate and water temperature***
- AHDB Standard Operating Procedure: ***Water sampling for microbiology***
- AHDB ***Designing a water supply system for livestock***
- AHDB ***Deep cleaning farm drinking systems***
- AHDB ***Survival time of pathogens in water***
- AHDB ***Managing mineral content of water for pigs***

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