

Water for Pigs and Poultry

Water quality

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Why water quality is important

Schlink *et al.* (2010) noted the amount of water consumed by an animal depends on a number of factors including body weight, physiological state (stage of pregnancy, lactation, etc.), diet, temperature, frequency of water provision, type of housing and environmental stress. Moreover, good water quality is essential for optimal livestock production. In addition, contaminants in drinking water can produce residues in animal products, such as meat and eggs, and thereby adversely affecting saleability and consumer health (ANZG, 2023).

Guidelines for water fed to livestock

Guidelines for water fed to livestock are readily available and provide recommended values for biological, chemical and radiological substances that may occur in water. A joint initiative of the Australian and New Zealand governments in partnership with the Australian states and territories gives specific recommendations (see ANZG, 2023).

Various factsheets are also available such as, *Water quality of livestock* (DPIRD, 2021) and *Water supply to pigs* (APL, 2016). Watson *et al.* (2020) outlined management of water quality and related criteria for chickens in their paper, *Industry best practice manual for water quality management and sterilisation on-farm*.

There are also useful resources available from e.g., universities and relevant organisations outside Australia. However, it must be noted that elements found in water elsewhere may be different to those found in water in southern Western Australia. Hence, recommendations should be considered in light of any differences.

Water quality

Schlink *et al.* (2010) noted that water quality can be defined by the presence or absence of certain substances, by taste, smell, turbidity and electrical conductivity. They suggested that although livestock need water of similar quality to that required by humans, often water quality requirements are poorly researched and are often defined by acceptability and their effects on livestock performance.

Water contamination includes factors such as microbiological (protozoa, bacteria, viruses), chemical (due to e.g., pesticides, fertilisers or fuel spills) and physical (e.g., turbidity and salinity) (Watson *et al.* 2020). As alluded to by Patience (2012), management of these factors through the whole water supply chain is important to ensure that those that impact an animal's wellbeing are appropriately dealt with.

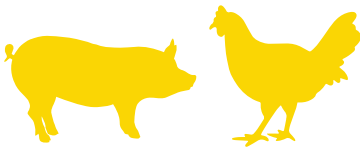
Water quality management

Edwards and Crabb (2021) found that in general, water quality did not appear to be routinely monitored or managed by the Australia pork producers who participated in their research. That is, they were not testing at least annually at the water source and the drinker.

As a result, they concluded that the farm managers participating in their study had poor visibility of the potential negative impacts that inferior water quality or management may be having on pig production and in turn the economics of their business. Importantly, they were concerned about the impact that inferior water quality may have on the delivery of antibiotics and in turn the industry's antimicrobial stewardship efforts.

Watson *et al.* (2020) suggested for chickens, there are six factors important for water quality management:

- Physical characteristics, mineral content, microbial contamination, and source;
- Cleanliness of distribution system, drinker lines, and drinkers before flock placement and during production;
- Drinker management during batch (drinker type, height control, pressure, drinker damage, and blockages);
- Flushing water lines between flocks and during production;
- Control of biofilms and mineral build-up;
- Water system equipment maintenance.



They provide detailed descriptions of problem identification and solutions for water fed to chickens. They too emphasised the importance of regular observational monitoring (e.g., inspecting the water system) and analytical measurements (e.g., laboratory analysis) of water quality characteristics. Regular monitoring of any one or part of a system should be increased at times of increased risk of problems occurring (Watson *et al.* 2020). Although their focus was concerned with meat birds, their findings are equally applicable to layers.

Efficient water management

Whilst water management is essential in pig and poultry production, it is important that it is efficient to ensure viable production systems. To this end, and based on Nyachoti and Kiarie (2010), the following water management practices may increase efficiency for pork and poultry producers:

- Repair leaking water lines promptly;
- Choose drinkers that minimise water wastage;
- Ensure that drinker and water flow rates are set correctly;
- Use properly formulated rations (particularly with regard to protein and salt);
- Maintain proper temperature and humidity conditions;
- Manage animal boredom so they don't use excess water;
- Recover wastewater and recycle;
- Move waste with as little water as possible.

Further information and references

Factsheet 1 of this series provides information about water requirements.

Factsheet 2 of this series provides information on issues associated with water quality and solutions.

Factsheet 3 of this series gives information about providing water and measuring quality.

Education Notes 1 and 3 focus on water supply and demand for pork and poultry production, and water salinity.

These Factsheets and Education Notes can be found at the Pork Innovation WA website: <https://www.piwa.com.au>

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