Factsheet #1

Water for Pigs and Poultry

Water requirements

Last updated December 2024

Water is an important requirement

Water is the most important nutrient for pigs and poultry. Drinking quality water must be readily accessible at all times to all animals. It is required for body thermoregulation, organ maintenance, toxin removal, digestion, as well as transportation and absorption of other nutrients. Hence, sound water management is a key response to a changing climate in southern Western Australia.

Water consumption is linked to feed intake

Depending on the form of the feed, typically, there is a direct relationship between water and feed intake. If water is restricted, feed intake can decrease resulting in production being suboptimal. Generally, when feed and water are unrestricted, growing poultry drink 1.6 to 2 times the equivalent weight of feed that they consume. By weight, growing pigs drink 2 to 3 times the corresponding feed intake.

These values can double when the temperature increases above 25 °C. Additional water will also be required if water has unacceptable salt levels. Gestating sows require additional water and lactating pigs have further requirements. Being aware of the factors affecting water demand is important to ensure efficient water use and optimal production. Managers should monitor animals for dehydration at all times.

Water testing is necessary

Regular water testing, for example at the beginning of each season, can assist with decisions regarding water supply and especially if medicines are supplied in water. A guide for desired chemical and microbiological drinking water quality for pigs and poultry is presented in Table 1.

The values in this table should not be used as health diagnostic indicators because problems caused by an element or compound can depend on various factors, including relative levels of other components and subsequent interactions, as well as the age of the animal.

Younger animals, or those not exposed to higher levels of some elements, can be adversely affected when fed water with reasonably safe levels of elements and compounds. Note that an unusual odour or colour may imply a high bacterial load even if the chemical analysis is within the desired quality guidelines.

Table 1. Desired chemical and microbiological drinking water quality for pigs* and poultry**

Parameter	Unit^	Desired for pigs	Desired for poultry
pH		6.5–8.0	5.5–8.0
Alkalinity	mg/L	<400	<100
Salinity / Conductivity	EC in µS/cm	<1,550	<2,340
Total Dissolved Solids	ppm	<1,000	<1,500
Total Hardness	ppm	60–200	<150
Turbidity	JTU^ ^	<30	<30
Nitrate	ppm	<100	<15
Nitrite	ppm	<10	<1
Chloride	ppm	<250	<250
Salt (as NaCl)	mg/L	<400	<400
Iron	ppm	<0.3	<0.3
Manganese	ppm	<0.05	<0.05
Sulphate	ppm	<250	<200
Fluoride	ppm	<2–3	<2
Sodium	ppm	<150	<300
Magnesium	ppm	<400	<125
Potassium	ppm	<3	<300
Calcium	ppm	<1000	<75

Parameter	Unit^	Desired for pigs	Desired for poultry
Zinc	ppm	<40	<1.50
Copper	ppm	<0.01	<0.6
Selenium	ppm	<0.05	<0.05
Aluminium	ppm	<5	<5
Arsenic	ppm	<0.2	<0.2
Boron	ppm	<5	<5
Cadmium	ppm	<0.05	<0.05
Chromium	ppm	<1	<1
Cobalt	ppm	<1	<1
Lead	ppm	<0.05	<0.05
Mercury	ppm	<0.01	<0.01
Vanadium	ppm	<0.1	<0.1
Phosphate	mg/L	<7.8	<1
E. coli	CFU/mL	0	0
Total CFU^^^	CFU/mL	<2	<2

*Adapted from APL (2017).
**Adapted from H&N International (n.d.).
^ Note that as an approximation, 1 ppm=1 mg/L and may be interchanged in recommendations.
^^ 1 Jackson Turbidity Unit (JTU) is equivalent to the turbidity created by 1mg SiO_2 per 1 L of distilled water.
^^^ CFU colony forming units (cells/mL) is a measure of the concentration of live, viable coliforms.

Know combined nutrients in feed and water and related water consumption

It may be useful to develop a nutrient management plan so that nutrients supplied in feed for pigs and poultry account for those available in the water fed with this feed. There is likely to be an increase in water consumption when the animal is exposed to excess salt, protein or minerals as well as higher temperatures.

Further information

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 to 3 focus on water supply and demand for pork and poultry production, water quality and water salinity.

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

#This Factsheet has been written using the following references. Please refer to them for further information.

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