Management

by Stuart Lumb

water quality

Animals can live without feed for some days, but only a matter of hours without water.

Water is something generally taken for granted in the northern hemisphere. If you are buying a piggery in Australia, however, the first thing you look for in the advertisement is information relating to the quantity and quality of that farm's water supply.

Water that is piped into the farm from a water company has to meet certain standards as it will have to be fit for human consumption.

If the water is sourced from a bore hole then naturally it is the farmer's responsibility to ensure that the water is fit for consumption and treatment may be required.

In some parts of the world mineral levels in water pumped from aquifers may be so high that it may be impracticable to use this as drinking water and just be suitable for power washing and cleaning down.

Many pig units in Manitoba rely on melt water from snow, which collects in open ponds, as their source of water. Being derived from snow this water should be of acceptable quality.

The presence of coliform bacteria in the water supply is an indication of faecal contamination and a potential source of disease.

Excessive applications of slurry can eventually migrate down through to aquifers and result in contamination.

Slurry can also be the cause of high nitrate levels in drinking water, which is undesirable.

This again may be a consequence of slurry percolating down into the aquifer. Excessive fertiliser application can also lead to high levels of nitrates in the water supply by the same route.

	ppm (parts per million) Less than
Calcium	1000
Chloride	400
Copper	5
Fluoride	2-3
Hardness	<60 soft
Calcium carbonate	>200 hard
Iron	0.5
Lead	0.1
Magnesium	400
Manganese	0.1
Mercury	0.003
Nitrites	10
Nitrates	50
Phosphorus	7.8
Potassium	3
Sodium	150
Selenium	0.05
Solids dissolved	1000
Sulphate	1000
Zinc	40
Coliforms/100ml	Zero

Table 1. Guidelines – water quality for pigs.

Once in the pig's body nitrates can get converted to nitrite. Nitrites then combine with oxy-haemoglobin to form met-haemoglobin, which reduces the oxygen carrying capacity of the blood.

Water may be clean and pure when it arrives at the farm but things can happen between then and the point at which the pig actually consumes the water.

Power washing and disinfecting buildings between batches of pigs is standard practice. The same applies to drinking systems which will often be header tanks, piping, drinkers and/or troughs.

Header tanks in buildings should be covered with a lid to prevent faecal contamination by rodents and birds. Also, it is not unknown to find drowned mice in open header tanks – not good for ensuring a clean water supply.

Whilst plastic piping is generally the norm these days there are still plenty of older pig buildings around with metal piping. These pipes rust over the years and iron particles and flakes break off and get carried along the pipes to the drinkers.

Whilst not really affecting water quality to any great degree these particles can cause nipple drinkers to leak, thereby wasting water.

Naturally the nipples have to be serviced which is all extra time and cost.

Troughs and bowls are ideal for providing water as the pig does not have to work for water, as it does with a nipple.

One major disadvantage of bowls and troughs when used to provide water to groups of pigs is that unless they are very well designed then they tend to get contaminated with faecal matter.

Pigs will drink contaminated water if they have no other choice but it is hardly an ideal situation.

Naturally these troughs and bowls should be regularly checked and cleaned out but it is often a job that gets neglected for obvious reasons.

The lactating sow has a massive demand for water and there is plenty of research evidence showing that giving extra water substantially benefits milk production.

Sows just after farrowing are often off their feed and a common sight in farrowing houses is several troughs half full of uneaten feed and water.

This feed can soon go 'off' especially in hot climates and it will contaminate the water. Naturally the trough should be cleaned out before each feed, but this is often easier said than done.

Getting access to the trough is often very difficult due to the crate design plus the sow often decides to try and help out as well!

Plastic milk or fruit juice containers with the top one third cut off make ideal scoops.

These plastic containers come in different sizes and hence can be matched up to different sizes of trough.

Producers are continually looking for increased performance from their pigs. Much has been written about the quantity of water that pigs need to perform optimally – what must not be forgotten, however, is that water quality is equally important as water quantity. ■

Reference

● Muirhead M. R. & Alexander T. J. L. (1997). Managing pig health & the treatment of disease.