

A newsletter for pork producers



PigBytes

Issue 27 October 2015

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Water – the forgotten nutrient

Sara Willis

Water is described as the forgotten nutrient because it's so freely available. It is often taken for granted and the specific recommendations on number of drinkers, drinker height, drinker type, flow rate and temperature are overlooked.

In hot weather, the pig's dependence on water to keep cool and maintain performance becomes even more critical. With summer upon us, take the time to assess your operation's water system.

The weaned pig

The weaning process is the most challenging period in a pig's life. The impact of being removed from the sow along with a sudden change from a liquid to a solid diet in new pen surroundings can reduce water and feed intake significantly.

Research by Varley and Stockill (2001) has shown that it may take up to 35 hours for 85% of pigs to find the water supply.

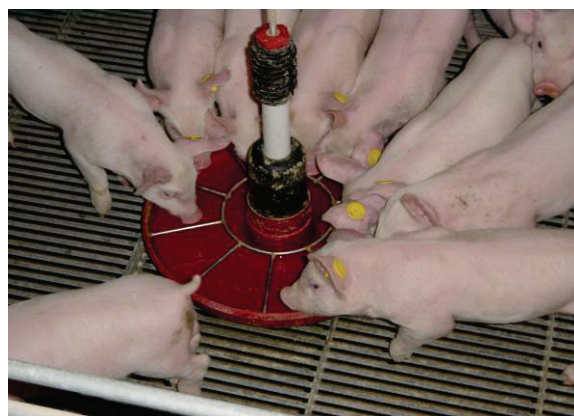
An adequate supply of fresh clean water is critical post-weaning, otherwise health and performance will be affected.

A piglet that does not drink will not eat!

Providing extra drinking space with bowl drinkers, turkey drinkers or long troughs for the first week

after weaning, will allow pigs to easily locate water and drink as a group.

Figure 1: Ready access to fresh clean water is a critical aspect of successful weaning.



Source: Sara Willis

Dehydration associated with poor water intake is a common occurrence within the first 7 days.

For the established weaner, water intake is typically around two to three times feed intake and will be more intense around the time of feeding.

Classic indicators of inadequate water supply include uneaten feed, lack of faeces, dirty drinkers, lack of water spillage and crowding around drinkers.

Unhealthy pigs require more water than healthy pigs of the same age and body weight. For example, water loss associated with diarrhoea or increased water demands of an animal with a high temperature, increase the water requirements of a sick pig.

A minimum of one nipple drinker per 10-15 pigs or one bowl per 20 pigs is recommended.

Small pigs have more difficulty reaching and operating nipple drinkers. The drinkers must be placed at the proper height to maximize water intake.

A general rule of thumb is to have the nipple height adjusted to be slightly above shoulder height of the smallest pig if angled downward, or at shoulder height if mounted at a 90° angle to the wall.

The ideal height from floor to drinker varies with pig weight. For pigs 5-10 kg, the recommendation is 100-250 mm whilst for pigs 10-20 kg, 300-400 mm is more appropriate. Providing drinkers at different heights to accommodate growth is a profitable practice.

Flow rate is important for the young pig because they won't spend a long time drinking and in many instances will move away from the drinker before satisfying their daily needs. A low flow rate will reduce feed intake and decrease growth rate.

Figure 2: Providing drinkers at different heights to accommodate growth is good practice.



Source: Sara Willis

It is generally recommended that a minimum of 500 ml per minute flow rate should be used in the weaner pens and 1000 ml/min should not be exceeded. Higher flow rates are correlated to an increase in water wastage.

When checking flow rates, it is important to check pens in different parts of the shed as the flow rate can be reduced due to pressure loss from the first pen to the last pen along the length of the shed.

Nipple drinkers can become blocked with rust, sediment and minerals over time so it is critical to check each nipple weekly to make sure it is working properly. Bowl drinkers require constant attention as they are easily contaminated with urine, faeces and bedding in deep litter systems.

The grower pig

The older pig is an impatient drinker. With too slow a flow rate, pigs become more aggressive and the pigs at the lower end of the social hierarchy may have less of a chance to drink.

Pigs will only devote a certain amount of time and effort towards obtaining their daily water intake requirements. Too many pigs /drinker, low drinker flow rates and bad positioning causes reduced water intake.

There should be at least 600 mm between drinkers to prevent one pig from dominating 2 drinkers. If pigs have to travel some distance from the feeder to get water, feed wastage increases as pigs will carry and drop feed between the drinker and the feeder. It is recommended to have a drinker within 2 m of a dry feeder.

Research by Brumm (2006) for the University of Nebraska has shown that in thermal-neutral conditions (generally air temperatures <27°C), grower pigs begin drinking water around 5 to 6 a.m., with a peak in drinking water disappearance in early afternoon and a gradual decline the remainder of the day.

However, when pigs are growing in warm to hot conditions (air temperatures in the pen exceeding 27°C for one or more hours/day) they appear to alter their pattern of drinking water usage.

Pigs begin drinking earlier in the day, with a morning peak from 8 to 9 am. There is a decline in drinking water use mid-day with a second peak in drinking water use from 5 to 8 pm followed by the decline into the night hours.

It is interesting to note that pigs shift to this pattern of drinking water use on the first day of the air temperatures exceed the thermal neutral condition and maintain the pattern for three to five days, even if these subsequent days have temperatures considered to be thermal neutral.

This adaptation is often maintained for several days in anticipation that the heat stress event will be longer than a single day. Brumm suggests that this shift in eating and drinking behaviour is one of the first adaptations of the growing pig to heat stress.

This information is important to producers as it illustrates the importance of having enough water available at peak times of water consumption so all pigs can drink during the high-demand times.

Lactating sows

Lactating sows have a high requirement for water to produce their 10-12 kg of milk/ day which consist of approximately 80% water.

Daily water consumption is reported to vary from 20 to 40l/d depending on factors such as ambient air temperature, diet, sow health, housing and stressors in the environment.

Sows need high-flow drinkers that produce at least 1.5 - 2L of water/minute to allow them to drink large volumes of water in shorter time periods. A lactating sow will take 10-20 minutes/day to consume her daily requirement of water from a drinker with a flow rate of 2L/minute. She will do this over several sessions.

Low flow rates can increase pre-weaning mortality through an increase in overlays due to restless sows having to get up more often as they attempt to consume their water requirement. On the other hand, a flow rate that is too high can discourage the sows from drinking.

The recommended water temperature for optimum water intake is in the order of 20°C, however during summer; water temperature is often similar to the ambient air temperature, which can be up to 40°C.

In a study conducted by Willis & Collman (2007) at the University of Queensland, Gatton piggery, cooled water was provided at 20°C to lactating sows by a mobile water chiller unit, developed from a second hand milk vat.

Figure 3: The mobile water chiller unit developed from a second hand milk vat.



Source: Sara Willis

Sows provided with the cooled drinking water significantly increased their daily water intake (38.5L/sow/day); compared to the sows drinking the standard shed water (31.9L/sow/day).

There was also a significant effect of water temperature on daily lactation feed intake, with the sows receiving cooled water consuming more feed (0.252kg/sow/day) than those receiving uncooled water.

The sows receiving the cooled water also weaned piglets with a higher average weaning weight (8.47kg versus 7.76kg) at 24 days of age.

Figure 4: Water lines insulated with Supa-Ion refrigeration insulation.



Source: Sara Willis

Table 1 lists the number of pigs recommended per drinker, suggested drinker height and flow rate when nipple drinkers are used. When swinging drinkers are used, it is recommended that they be adjusted to a height of 5 to 7.5 cm above the back of the pig every 2 to 3 weeks as the pigs grow.

Table 1: Recommendations for the supply of water to pigs. Nipple and bite drinkers are preferred for wean to finish pigs.

Class of stock	Required water	Flow rate	Height from floor	Maximum pressure	Ratio drinkers to pigs
	L/day	L/min	mm	kPa	
Lactating sow	20-40	1.5-2.0	820	No limit avoid waste	
Dry sows and boars	10-20	1.0	820	No limit avoid waste	300mm / 15 sows
Weaner <10kg	2-3	0.5	150-300	85-105	1-to-10 up to 1-to-15
Grower 10-50 kg	5-7	1.0	300-600	140-175	
Finisher 50-100 kg	9-12	1.0	600-750	140-175	300mm / 20 finishers

Source: Sara Willis

Summer Checklist

- Repair any broken drinkers and make sure there are enough drinkers for the number of pigs/pen.
- Ensure that drinker flow rates are appropriate for the age of the pigs (see Table 1). These should be checked and maintained on a weekly basis. Use a 1 L container and measure the volume of water collected from a drinker in 60 seconds. Check pens in different parts of the shed.
- Make sure water is as cool as possible; insulate delivery lines inside the shed and bury any exposed water pipes under at least 600mm of soil. If water is held in a tank, paint it white.
- Bowl drinkers require constant attention because they are more easily contaminated with urine, faeces and bedding in deep litter systems.
- A simple indicator of thirst is to introduce a bucket of water to a pen and observe pig behaviour.

More information

For more information, contact Department of Agriculture and Fisheries senior extension officer Sara Willis on 07 4688 1214

or email sara.willis@daf.qld.gov.au,

or contact us on 13 25 23.

Water supply for outdoor herds

Jayce Morgan

Water supply is just as important for the outdoor herd and the increasing likelihood of an El Nino event means it's time to review your setup before the heat hits.

Water supply lines should be buried at least 60cm deep to keep water as cool as possible. Black poly pipe supply lines which are above ground heat up very fast and the water will be too hot for pigs to drink.

Nipple drinkers and small bowl drinkers are generally unsuitable for outdoor use. They get too hot for use unless well positioned so they are in shade all day. They can also be more prone to blockages and leaks from the mud and muck the pigs might leave behind.

Large troughs are usually the preferred option but they need some sort of guard so the pigs don't use their trough as a wallow.

Figure 4: Pigs will use troughs as a wallow if there are no guards in place.



Source: Jayce Morgan

If you do use large troughs remember to consider whether all classes of pig can access the water; otherwise the smaller pigs will be drinking the wallow water.

Also, be aware of the quality of the water that you use. Summer water supplies can be affected by the presence of **blue-green algal blooms**. Blue-green algae are toxic to pigs so plan your water supply carefully.

Make sure you have good emergency supplies of water for at least 3 days of water (a week's supply in reserve is better).

Pigs outdoors also need water for wallows for cooling themselves – make sure your supply can cope with this demand.

Remember when temperatures climb above 30°C pigs are feeling heat stress even if they have good shade. Don't cause further stress by having inadequate water supply when it is most needed.

Close encounters of the pork kind

Jayce Morgan

Recently I returned from an overseas holiday to Germany, Poland, Hungary, Czech Republic and Austria. In this part of the world people consume an average of 50 kg of pork per person annually. I was there as a tourist and just want to share some observations of mine about the pork I encountered.

- The pork tasted different to the pork I buy in my local supermarket. Yes it could be that there was a better chef at work, it could be different processing and curing or smoking. But there was a noticeable taste difference and it was nice. For example the bacon was less salty and a bit sweeter.

- Two meals featured pork knuckle on the menu – not something I have encountered here in Australia (yes I don't get out much). Basically it is pork shank. It was prepared perfectly – the crackle was crisp and crunchy and the meat fell off the bone – truly enjoyable. I wonder if this is a cut that would take off in Australia with the right promotion.

Figure 5: Pork knuckle with sauerkraut and potato with mustard sauce; simple and delicious.



Source: Jayce Morgan

- In Hungary we got to taste some Mangalica Pork – pork from the Mangalitsa Pig.

The Mangalitsa is a very old curly haired pig breed originating in the region around Hungary. Articles on the internet describe the pig as a lard type pig.

Increasing demand for lean pigs and less to no demand for lard resulted in the popularity of the Mangalitsa pig declining until the 1990s when there were less than 200 Mangalitsa pigs left.

Careful breeding programs, export of the breed to the UK and US; and the rise of the slow food movement have seen the breed increase to around 50,000 worldwide.

Different articles have described Mangalitsa pork as the tastiest pork in the world – a big claim. However there is no denying the cuteness of a curly haired pig and the mantra for rare breeds – eat them to save them.

And the answer is No – we cannot import these pigs or their genetics into Australia. And no I did not see any live animals.

Figure 6: A swallow bellied Mangalitsa pig. There are 3 colour types blonde, swallow bellied and red.



Source: <https://en.wikipedia.org/wiki/Mangalica>

The successful resurgence of this breed is because people are promoting the breed's strong points – tasty lard and marbled meat for a niche market – and not trying to make changes so it fits with current production techniques.

I make no claim to being a 'foodie' but I am thinking that our small scale charcuterie businesses are on the right track with their use and promotion of meat from the rare breeds remaining in Australia.

References:

[Heritage Pork: the Mangalica pig](#)

[British Pig Association: The Mangalitsa](#)

[Wikipedia: Mangalica](#)

[Wikipedia: Lard](#)

Figure 7: Piglets of the Mangalitsa are striped which indicates some wild boar genetics in the breed's early pedigree.



Source: <https://en.wikipedia.org/wiki/Mangalica>

Testing for mould in hay and grain

Jayce Morgan

Haymaking and grain harvesting are happening now. One of the big problems for pork producers is the presence of mycotoxins in feed or straw.

Mycotoxins are toxins produced by moulds which can appear during a wet harvest, or a stretch of stormy humid weather conditions. Mycotoxins and moulds can occur on straw, hay and grain; and cause a range of health problems for pigs including reproductive problems, vomiting and diarrhoea and even death.

The NSW Feed Quality Service (Feed testing) offers a mold count and toxin test which will indicate the number of colonies present in the sample and whether the feed is dangerous to stock due to the level of mould contamination.

Enquiries can be directed to the customer service officer on the toll free number 1800 675 623 (select option 2) or email: wagga.csu@dpi.nsw.gov.au

Alternatively you can go to the website [NSW Feed Quality Service \(Feed Testing\)](#) and simply follow the guide on sample collection and use the [Sample submission form](#).

Look after those sows!

Jayce Morgan

Well we've touched on the water requirements for pigs in the heat – but what about their food? Intakes are depressed in hot weather especially among lactating sows.

A recent Pig Progress focus newsletter identified the two sow parities at greatest risk from poor feed intake during lactation. These were the gilts or parity 1; and sows of parity 7 or greater.

Poor nutrition of sows has the greatest impact on sow longevity in the breeding herd. Farmers who seek to use by-products of the human food supply chain should seek help from nutrition experts to ensure their sow's diet is balanced.

When sows lose weight during lactation there is a loss of muscle and bone minerals as well as body fat. These nutrients need to be replenished for good health and longevity.

It can take a sow 3 to 4 parities before she reaches her break-even point in terms of costs.

So how can you tempt your sows to eat more?

- Supply plenty of fresh clean cool water. Feed consumption is depressed if intake of water is limited.
- Feed well formulated diets made from palatable ingredients fed several times per day.
- If you feed by-products make sure they are not mouldy or odorous.
- Have good storage facilities so feed ingredients are not contaminated by weevils, birds or rodents.
- Review the fibre content of the diet in hot weather – fibre digestion generates increased body heat – good for cold weather but not for the heat.
- Consider the addition of betaine to sow diets if it's not there already – it helps with osmoregulation. Betaine is present in sugar beets, wheat and wheat products, lucerne meal and is also available in a purified form.

Remember your sows are the engine room of your pork production enterprise. Look after them properly.

References:

Ratriyanto A, Mosenthin R, Bauer E, and Eklund M 2009 "Metabolic, osmoregulatory and nutritional functions of betaine in monogastric animals" Asian-Australian Journal of Animal Science Vol 22 No 10: 1461-1476.

Hoffelt Jeff, "A three step approach to lift sow parity numbers" [Pig Progress Focus Sow Management Themed Newsletter](#)

Coming Events

Jayce Morgan

Forbes Stud Pig Sale and Bedgerabong Youth Show

Plans are underway to repeat the successful Forbes Stud Pig Sale on 28th April 2016 to be held at Bedgerabong Showgrounds. Organisers hope to include a small trade show in 2016 as well as organizing the Bedgerabong Youth Pig Show for school students on April 27 (the day before the sale).

Pork producers travelled from as far as South Australia and Northern NSW to attend the inaugural sale last June with 50 buyers registered on the day, and all the pigs on offer were sold successfully. Organisers of the show and sale are a small band of very committed central west pork producers.

About 150 people attended on the day. In view of the popularity of the sale the organising committee

is keen to attract trade displays from companies that provide products and information for the pork industry such as nutrition and health products, technical advice, building materials and other technology which may be of interest to producers.

The Youth Show component also proved to be very popular in June this year with 97 students from 11 different schools attending the show. Students were very enthusiastic for some hands-on experience with pigs.

Enquires: Murray Reid mobile 0488 432 207 or email: vc Reid@westnet.com.au

Passionate about Pigs

NSW DPI and Greater Sydney Local Land Services are creating a network for small-scale producers and developing workshops around information and activities that would be of interest to small-scale producers to be delivered state-wide.

We are interested in topics which you think should be covered in these workshops and would love to hear from you!

Contact Jayce Morgan mobile 0428 416 518 or email: jayce.morgan@dpi.nsw.gov.au

NSW Department of Primary Industries (NSW DPI) Pig Industry Group

Jayce Morgan
Development Officer Pigs: 02 6763 1257

Dr Amanda Lee
Senior Veterinary Officer (Pigs and Poultry):
02 4640 6308

Alex Russell
Manager Intensive Livestock Industries
02 68811212

Victorian Department of Economic Development Jobs Transport and Resources (DEDJTR) – Pig Industry Group

Dr Youssef Abs El-Osta
General Manager-Pig Services Centre:
03 5430 4595

Patrick Daniel
Pig Health Monitoring Service (PHMS):
03 54304570

Queensland Department of Agriculture and Fisheries (DAF)

Sara Willis
Senior Extension Officer: 07 4688 1214

PigBytes is a newsletter from the pig industry team at NSW DPI, Victorian ECODEV and Queensland DAF.

Editor: Jayce Morgan
jayce.morgan@dpi.nsw.gov.au

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