

Tonisity **Total Programme**

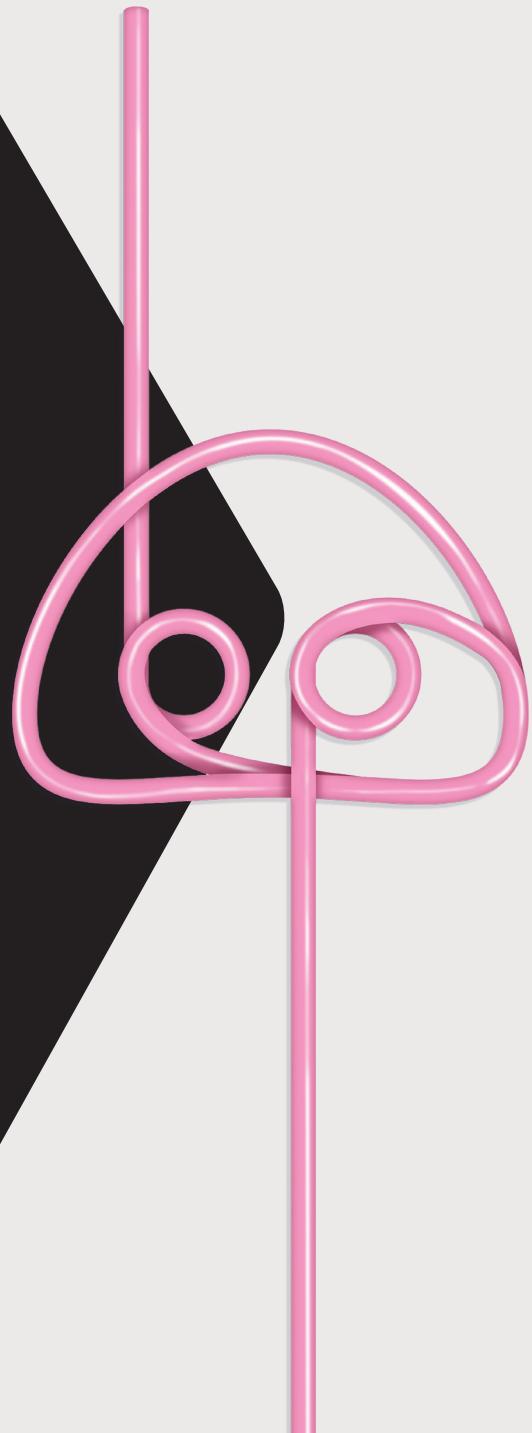
From day 2 of life, help your pigs
thrive as they transition through
key production milestones

About Tonisity

Tonisity International is a global animal health company which was founded in 2015. Our focus is on developing supplementary nutritional products that create physiological changes in the gut of young animals.

We care about bringing improved animal welfare and production outcomes, which lead to positive returns for farmers around the world. With farmers under increasing pressure to improve production efficiency, Tonisity have created natural and non-GMO solutions to help them achieve their goal.

We have pioneered disruptive technologies, that use an isotonic solution, to deliver key ingredients that nourish the small intestine. The efficiency of the farming industry can be improved by addressing intestinal health from the first week of life.





What is the Tonisity Total Programme?

Tonisity developed the Tonisity Total Programme to improve gut health performance of pigs from day 2, right through to finish.

Where most products feed the pig, this programme is designed to feed the gut of piglets at different stages of their production lifecycle; in the farrowing house, at weaning, and for weaned or fattening pigs.

In the farrowing house, ensuring the survival of piglets is key. Tonisity have developed an isotonic protein drink, Tonisity Px, which encourages the development of enterocytes in the small intestine, to help pigs get off to the best start. At pre-weaning, Tonisity Px is added on top of dry feed to encourage piglets to eat, helping them through a stressful weaning.

Post-weaning, Tonisity PxW, a water-soluble complementary feed, is added to water lines, to provide a memorable taste experience. Tonisity PxW contains amino acids that specifically nourish the enterocytes, which encourages water consumption and feed intake.

Providing the pigs with this delicious and palatable solution, the Tonisity Total Programme helps maximise the pigs growth potential, reduces challenges along the way and ensures better financial returns for you.

Overall, producers can expect to see reduced pre-weaning mortality, improved gut health, better performance up to slaughter and a clear improvement in return on investment.

The Tonisity Total Programme gives the biggest returns when used across all pigs, not just the small ones.

1



Farrowing

Days 2-8:

Tonisity Px

(3% solution)



2



Pre-weaning

-3,-2,-1

Tonisity Px

(3% solution)



3



Post-weaning

0,+1,+2

Tonisity PxW WeanBetter

(3-day minimum)



Tonisity Px

Tonisity Px is the first isotonic protein drink that feeds the pig's gut from day 2 of life.

It contains the key ingredients needed to nourish the intestinal cells of the small intestine, known as enterocytes. Tonisity Px directly targets and feeds these cells which act as entry points along the small intestine and allow for the absorption of amino acids, simple sugars and fatty acids, before they can be transferred into the bloodstream.

By targeting these enterocytes, Tonisity Px helps to stimulate and boost the development of the small intestinal villi, enabling them to better absorb nutrients into the bloodstream.

It has positive effects on intestinal health, encourages consumption of milk and feed, leading to decreased pre-weaning mortality and increased weights after weaning and up to slaughter.

Tonisity PxW WeanBetter

Tonisity PxW WeanBetter (PxW) is a water-soluble solution for weaned or fattening pigs.

It is designed to be administered to pigs after weaning through water lines using an automatic dosing system. It is an innovative and palatable combination of amino acids and electrolytes, that deliver the necessary hydration, gut support and appetite during this transitional period.

Tonisity PxW WeanBetter is to be used as a follow-on solution, for pigs that were originally on Tonisity Px in the farrowing stage. It helps pigs to transition to feed faster as its flavour profile evokes a memory response in pigs who were previously on the starter formula of Tonisity Px.



Pigs love the taste of it!

- › Improve water intake
- › Improve feed intake
- › Achieve heavier pigs

Farrowing

In the farrowing house, ensuring the survival of piglets is key. The Tonisity Total Programme can be introduced as early as day 2 of life. Taking the day of birth as day 0, Tonisity Px can be fed to piglets after 36 hours of life.

Tonisity Px works to increase the rapid development of the intestine in the first week of life by stimulating the growth of the small intestinal villi, resulting in better absorption of nutrients from sow's milk. Tonisity Px has been shown to have beneficial effects on the intestinal microbiome. Studies have shown a significant increase in lactobacilli ('good' bacteria) and significant reductions in E. coli pre-weaning.

This improved intestinal development lays the foundation for increased weights after weaning and up to slaughter, and overall health of the piglet.

Benefits >



Improved gut health



**Decreased mortality
in pre-weaning**



**Increased weights after
weaning & up to slaughter**



**Early hydration for
pigs from day 2**



**Improved return on
investment**

Directions for use

- Mix 310 g of Tonisity Px with 10 litres of fresh water to make a 3% liquid solution
- Stir solution until dissolved
- Mix fresh Tonisity Px daily and use clean feeder pans for delivery

Tonisity Px
Powder



Fresh
Water



Tonisity Px
Solution



Feeding Rate

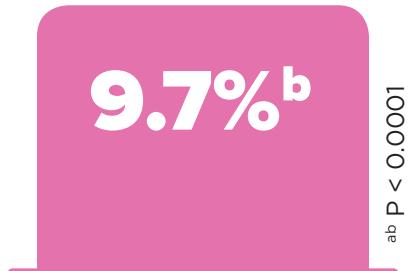
Days 2-8: 500 ml/litter/day
40 ml/piglet/day

Pre-weaning mortality %

Meta-analysis of pre-weaning mortality on 125,575 (60 trials in 20 countries)



Control



Tonisity Px

^{ab} P < 0.0001

**Tonisity Px
reduced
pre-weaning
mortality by
20%**

Pre-weaning

Weaning is a particularly stressful time for piglets as they make the transition from sows' milk to solid feed.

When Tonisity Px is mixed with dry feed to make the gruel, piglets will recognise the familiar taste, encouraging them to eat, thereby maintaining their average daily gain throughout the first week after weaning. Tonisity Px provides the necessary energy boost and hydration required during the stressful weaning phase.

Benefits >



Provides a palatable formula ensuring that pigs learn to eat more readily



Helps piglets transition to feed faster as flavour evokes a memory response



Improved gut health



Increased weaning weight



Helps piglets cope with stress



Improved return on investment

Directions for use

- Mix 310 g of Tonisity Px with 10 litres of fresh water to make a 3% liquid solution
- Stir solution until dissolved
- Pour solution on top of creep feed

Feeding Rate



3 days before weaning:
500 ml/litter/day
40 ml/piglet/day

Mixing Instructions

For Liquid/On Top of Feed

Pour the solution on top of creep feed (ratio: 1 L of solution for 1 kg of feed) and ensure that piglets also have access to fresh water and dry feed. This will facilitate the transition to dry feed after weaning.



Increasing weight gain

Net weight gain from 2 days of age to 20 days post-weaning (least square means).¹



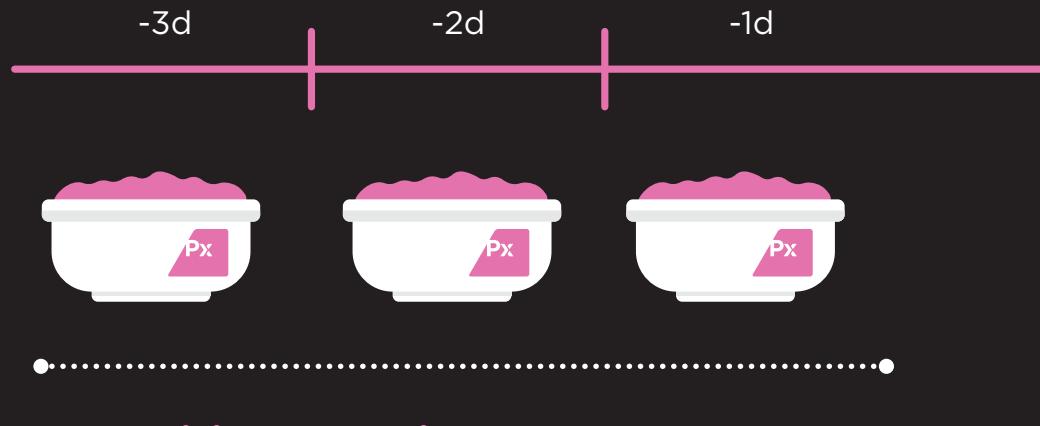
794 g
+10.7%



¹ Tonisity Technical Bulletin PX-18-01

Weaning Programme

**For optimum performance at weaning, use Tonisity Px
for 3 days before weaning and Tonisity PxW WeanBetter
for 3 days post weaning.**



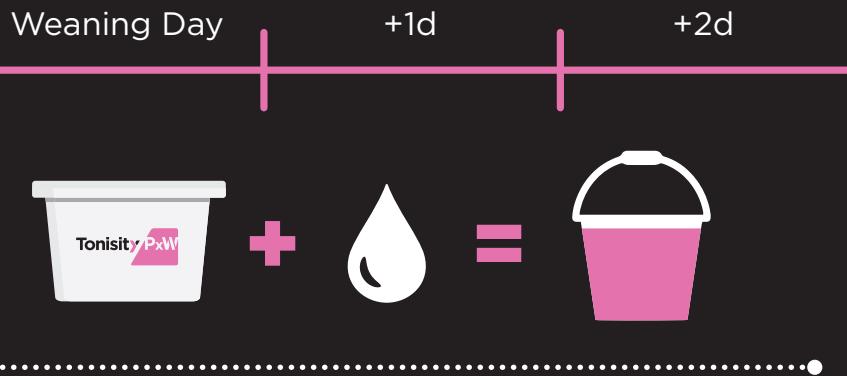
Improve water intake



Improve

The Result

The Tonisity Total Programme encourages good feed intake and hydration during the stressful weaning phase. Both of these benefits contribute to improved weight gain and intestinal health.



Add Tonisity PxW solution to the water lines

ove feed intake



Achieve heavier pigs

Post-weaning

In most operations, piglets are weaned and then moved to a growing facility.

These new environments and the initial separation from their litter and mother, can contribute to weight loss and reduced growth. This problem is called the 'post weaning growth-pause' and is associated with changes in pigs' intestinal biochemistry.

These intestinal changes often result in post-weaning diarrhea which further contributes to weight loss and a decline in appetite and health.

Tonisity PxW WeanBetter was developed to act as a carefully formulated complementary product to Tonisity Px, and works optimally when used upon arrival in the grow/finish barn with pigs that were previously given Tonisity Px in the farrowing stage.

Tonisity PxW WeanBetter contains key amino acids that help nourish the intestinal cells, as well as providing a stimulus for water intake. Both of these attributes will have a positive impact on the pigs overall health and performance.

Benefits >



Continues to feed the enterocytes post-weaning



Provides a palatable formula ensuring that pigs learn to drink more readily

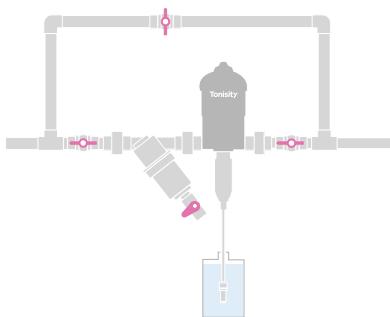


Helps piglets transition to feed faster as flavour evokes a memory response

Feeding Rate

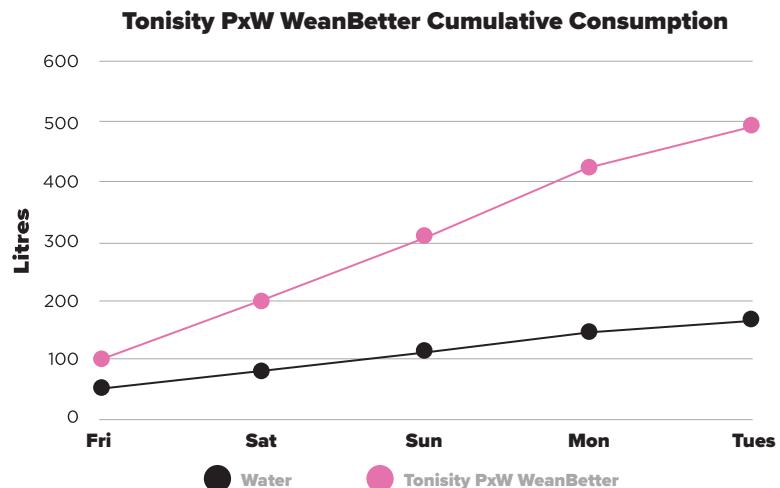
1. Medicator Pump

- Add 1 kg of PxW powder to 4 L of water to make a liquid concentrated solution in a suitable container
- Mix well until dissolved
- The concentrated solution of Tonisity PxW should be delivered through the water lines using an automatic dosing system, with the dilution rate set at 1 part of concentrated Tonisity PxW to 100 parts water (1:100). 10 L of concentrate supplies 850-1000 weaners for a day



2. Water Supply System

- Add 1 kg of PxW powder to at least 5 L of water in any suitable container
- Mix well until dissolved
- Add that mixture to a 500 L water supply. 500 L of treated water will supply 400-500 weaners for a day



Directions for use:

1

1 kg PxW Powder + 4 L Fresh Water =
PxW Solution

1 part PxW Solution + 100 parts Fresh
Water = PxW Solution (1:100)



Days 0, +1, +2 at weaning

Final dilution: 1 kg of Tonisity PxW in 500 L of water

2

1 kg PxW Powder + 5 L Fresh Water =
PxW Solution

PxW Solution + 500L = 500 L Treated Water



Transport

During transit, pigs are exposed to various stressors (space restrictions, travel conditions and transit time), which can affect their overall health and well-being.

Tonisity PxW WeanBetter can be used to provide support and hydration during these stressful periods to ensure pigs arrive in the best possible condition.

Use Tonisity PxW WeanBetter after transport, especially in weaning pigs, to facilitate a quicker transition to normal feeding behaviours and improve their hydration.

Benefits ›



Decreases transition time to normal feed



Helps piglets cope with stress



Improves hydration during this stressful time

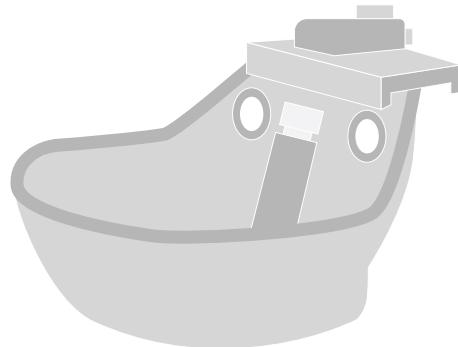
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Directions for use:

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1 kg PxW Powder + 4 L Fresh Water =
PxW Solution

1 part PxW Solution + 100 parts Fresh
Water = PxW Solution (1:100)



For a minimum of three days

2

1 kg PxW Powder + 5 L Fresh Water =
PxW Solution

PxW Solution + 500L =
500 L Treated Water



Final dilution: 1 kg of Tonisity PxW in 500 L of water

Birth to Finish - A Positive Shift

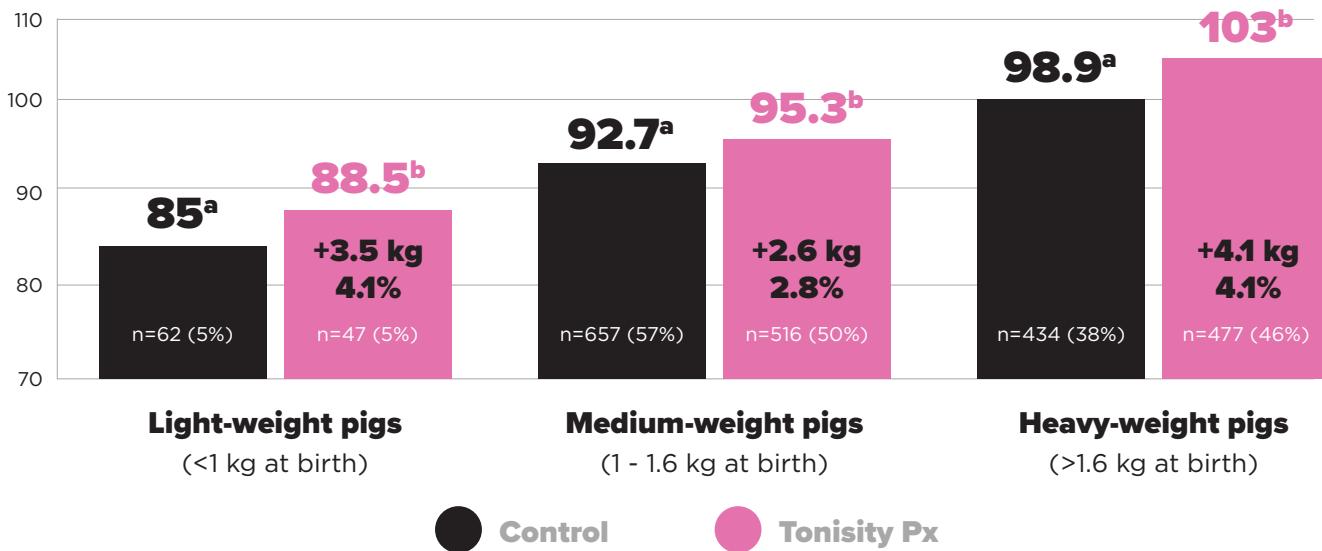
In a US trial, the Tonisity Total Programme was fed to pigs that produced more weaned pigs and heavier finishing weights.

The population of pigs fed using the Tonisity Total Programme also demonstrated a clear shift to heavier finishing weights compared to controls.

Individual weights of all pigs measured four times: at birth, weaning, end of nursery, and at day 168, thereby providing exceptional statistical power for analysis of study outcomes. This favourable shift in finishing weight distribution confirms the more-pigs/heavier-pigs benefits of the Tonisity Total Programme.

- **95% of pigs were medium to heavy weights at birth**
- **Tonisity treated pigs showed less light pigs and more heavy pigs overall at finishing**

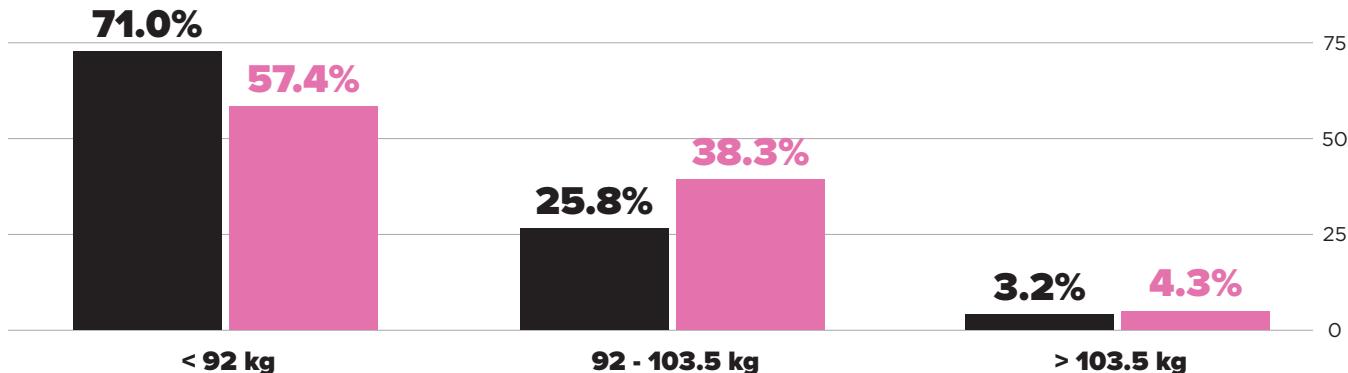
Day 168 Weight (kg)



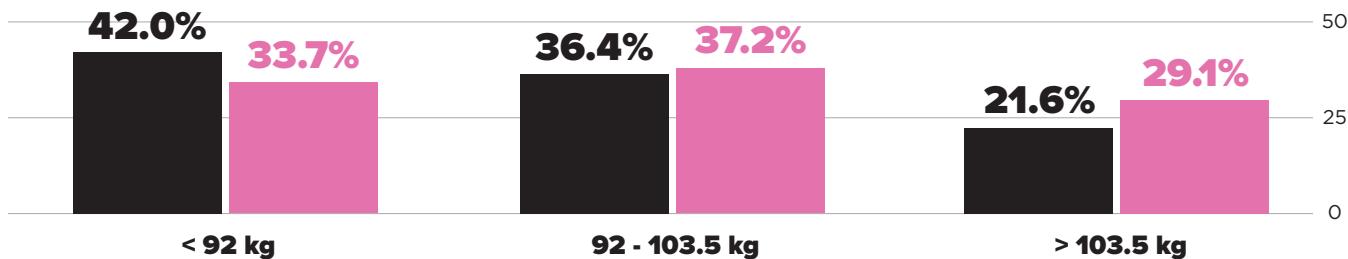
Effect of Tonisity Px on distribution of day 168 weights, per class of weight at birth

(a) Light pigs at birth (less than 1 kg liveweight at birth)

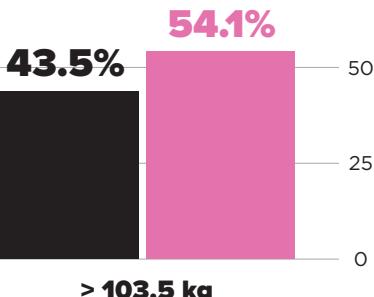
Control Tonisity Px



(b) Medium pigs at birth (from 1 to 1.6 kg liveweight at birth)



(c) Heavy pigs at birth (above 1.6 kg liveweight at birth)



Pigs across all weight classes benefit from the Tonisity Total Programme.

Water Quality

The quality of the water you use to prepare the Tonisity Px solution can make the difference between success and failure.

In trials we conducted where there was poor water quality, the outcomes of these trials were generally inconclusive. In every single case, we isolated poor water quality as the single factor affecting trial results. We knew this to be true because when the same protocol was replaced with bottled water, the piglets loved the taste of Tonisity Px and Tonisity PxW WeanBetter and eagerly consumed it.



What determines your “water quality”?

1. Temperature

It is best to use room temperature water (about 20-30°C), which helps the powder dissolve into the water. The easiest way to achieve this desired temperature, is to fill a clean mixing container with fresh water at the end of the day, prior to usage the next morning, and leave it in a temperate space.

2. Hardness

Hardness measures the mineral levels in the water supply. If the water is extremely hard (>250-300 ppm), the powder might be slow to dissolve in the solution. Also, when mixing Tonisity Px with very hard water, minerals will be in excess and the solution becomes hypertonic (instead of isotonic) which could possibly result in diarrhea.



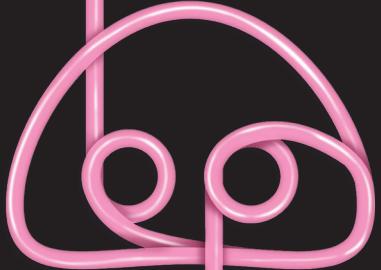
3. Palatability

If the water contains contaminants like sulfates, iron or chlorine in strong concentrations, the pigs will not drink it. Most of the time, pigs will later surrender and drink the water when they become dehydrated enough. Conversely, when we want piglets to consume Tonisity Px or Tonisity PxW WeanBetter, they need a drink that tastes good.

4. Bacterial Contamination

While the presence of bacteria in the water doesn't necessarily mean it is unsafe to drink, the presence of pathogenic (disease-causing) organisms (bacterial or parasitic) in drinking water is a concern. When consumed by pigs, the bacteria can cause diarrhea and diseases. It is important to have your water samples analysed by a local laboratory, to determine if pathogenic bacteria are affecting your water supply.

Tonisity also provide water filters to help control the growth of bacteria. They filter up to a 30,000-litre capacity at a 7.5-litre per minute flow rate. In particular, they filter out some bacteria, lead chemicals, chlorine taste, sediment, bad taste and odour.



Healthier, Heavier, Happier Pigs

For further information on the
Tonisity Total Programme, please contact:

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