Clean drinking water is essential for good pig health

Clean drinking water is essential for pig health and plays a key role in pig performance. Water is the nutrient of highest importance, making contaminated water a serious threat to animals and profits. While pig producers are critical about the quality of the feed, the quality of drinking water often does not receive the attention it deserves.

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Frequent cleaning and monitoring of the drinking system is necessary to maintain a good quality drinking water. When products like antibiotics, vitamins and acids are added to the drinking water this becomes even more important.

Clean water is the basis of life

Good human and animal health starts with clean water. It is often taken for granted, but in practice, when we take a closer look at end user water quality, this is not the case. However, we all know that really clean water leads to good health and well-being and thus a higher return.

Water filters are intended to filter and remove contaminants from the water and therefore prevent blockages and unnecessary equipment wear and tear in the (drinking) water system. Quite often you see dirty filters in the corridors of a pig house. This is an indicator of the pollution in the drinking system. Cleaning your drinking system on a regular basis is important to avoid blocked drinking nipples.

The filter removes contaminants from the pigs' drinking water.

Dose properly

Almost every pig farmer has a dosing pump for drinking water additives. But the frequency of use differs greatly and the user experiences are also very variable.

The benefits of drinking water additives are certainly clear. It is the way to quickly and specifically provide additives besides the feed, exactly to the department that needs it. As previously mentioned, sick animals continue to drink longer than they eat. This is the great advantage of medication via the water compared to feed medication.

The reduction in the use of antibiotics also means that dosing devices are increasingly used for applications other than medication. More often the dosing pump is used for adding acids to the drinking water for salmonella control and drinking water vaccination, for example against ileitis.

To make the application of acids or other additives a success, the drinking water system should be clean and the drinking water should be free of contamination, such as manganese, iron, and vaccine residues.

When the basis is not good and the drinking water is polluted there is an extra chance of taste abnormalities and reduced water intake. Interaction between residues in the drinking system and new additives can lead to blocked drinking nipples.

When using a dosing pump there are two ways of applying the liquid additive, direct or via a pre-solution. Direct from the can is the best way to avoid mistakes in your calculation. If you make a pre-solution, calculate the water consumption of your pigs per day to know how much they drink and how often you have to make a new pre-solution. In case of an acid, if the pre-solution bucket is empty, the pH of the drinking water rises to the pH of the drinking water without acid. This is perfect for bacteria and biofilm with a high chance of blocked drinking nipples.

Save 25% on your drinking water additions now

With regular dosing equipment, there is a common problem of failed or incorrect dosing in cases of low water uptake, for example in housing with young animals. The accuracy of the water meter is a very important point of attention. That is why the best dosing systems are equipped with a volumetric water meter which starts reading with a water intake as low as one litre per hour.

The pressure in the water lines can vary greatly through, for example, higher water intake by the animals in the housing unit after feeding or due to design errors in the drinking water system. This will lead to significant variations of up to 25% with a regular dosing module. Use of a pressure control valve will take care of this, as your dosing pump constantly delivers the right amount of liquid, regardless of the operating pressure.

Kanters provides the Optimus dosing pump, the ideal solution for automatic administration of liquid feed supplements and cleaning agents to drinking water in intensive and even less intensive livestock farming.

Continued on page 23

Continued from page 21

The Optimus offers the possibility to switch over to an additive quickly when the animals are suddenly in a stress situation or when their health is in question.

It cannot be said often enough: rinsing and cleaning at a fixed frequency makes or breaks the success of your drinking water additives.

The Optimus dosing system from Kanters.

Visual inspection of the rinse water before and after the addition ensures that you are not 'surprised' by a dirty system. Drinking water additives have their advantages, but also require extra attention.

Biofilm as a hiding place

Drinker lines in pig houses are vulnerable to the formation of biofilms, particularly in the first weeks after weaning, because of low water flow and increased temperatures, which are suitable for the growth of microbes.

Biofilm can harm water equipment, give an odour and unpleasant taste to the water and can spread diseases through the herd.

The biofilm serves as a breeding ground for micro-organisms as it contains, for example sugars, proteins, iron, and manganese. As such, it is a serious issue on a pig farm. Forming a biofilm is considered to be a protective mode that allows micro-organisms to survive in a hostile environment.

Biofilm in drinker lines and contaminated water reduces the effectiveness of antibiotic treatments and feed supplements.

In fact, infections associated with biofilms are, in public health, proven to be 10-1,000 times more resistant to the effects of antimicrobial agents.

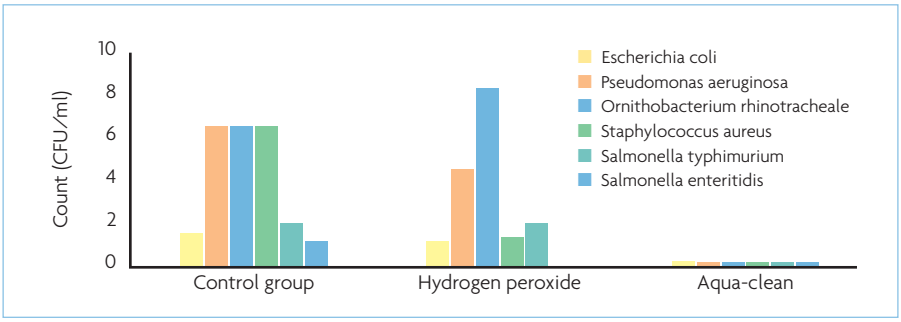

Fig. 1. The growth of pathogens in drinking water when using Aqua-clean, hydrogen peroxide or no product (Animal Health Services, Department of Bacteriology, Deventer, The Netherlands).

Removing biofilm

To remove a biofilm, a product is needed which can disorganise the slimy extracellular matrix. At the same time it needs to be safe for the animals to drink. Efficacy, toxicity and corrosiveness are important characteristics to take into account.

To find a good product producers need to be careful because what seems to be a good product solving one part of the problem may cause other problems.

One of the most, if not the most effective chemical for biofilm control, is hydrogen peroxide in combination with silver. The product of this reaction is highly reactive free oxygen radicals which give a highly reactive reaction. Free oxygen radicals will degrade pollution by oxidative and disinfectant effect. When using hydrogen peroxide in the drinker lines on the farm a hissing sound can be heard. This is the oxygen that escapes from this reaction.

Hydrogen peroxide is also very strong on the deactivation of lipids, proteins and nucleic acids. In a large number of scientific papers the effect of this oxidation effect is described.

When combining hydrogen peroxide with silver, a synergistic action on the viability of, for instance, E. coli is observed. In some instances, the combined bactericidal effects were 1,000-fold higher than the sum of the separate ones.

Fig. 1 shows the result of using no sanitiser compared with using only hydrogen peroxide and using a hydrogen peroxide with silver. Aqua-clean has the best results. This is a product from Kanters which consists of hydrogen peroxide and silver complex.Aqua-clean eliminates biofilm and it does not lead to toxicity or corrosion problems.

By being 100% biodegradable, Aqua-clean is considerably more environmentally compatible compared to many other common disinfectants used so far. ■

References are available from the author on request