



Organic acids in water can improve performance of the weaned pig

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One of the greatest challenges to the pig farmer is to ensure that weaned piglets get off to a good start without suffering 'a post-weaning check'. Any interruption to pig health at this critical time will have inevitable consequences in growth rates and feed utilization as well as more obvious immediate losses such as medication costs and possibly mortality, all contributing to increased production costs.

In addition to the accepted areas requiring close attention for the weaned pig (pen hygiene, correct diet, correct temperature etc), the role of water (and its' quality) should not be overlooked as a major contributor to good early weaner performance. Water, especially if warm or obviously dirty, can carry high levels of bacteria including Salmonella. The stomach of the pig is unable to produce significant levels of acid until it is approximately 10 weeks of age, and thus before this age, any ingestion of possible pathogens can result in a health problem.

Currently intervention studies are being undertaken on farms throughout England to try and determine cost effective means of controlling Salmonella on farm. Amongst the studies being undertaken is an assessment of water acidification. Results from these studies will be collected and reported later this year. However, water acidification need not just be reserved for obvious problem units.

James Hart and his team introduced the routine use of water acidification onto a 400 sow breeder – finisher unit in the South West of England in January 2007. The possible use of acidification had been discussed previously, but the isolation of Salmonella from scouring weaners in October 2006 reinforced the potential value of this policy.

The herd is closed and is of commercial health status (PRRS, EP, PMWS positive). It did not (apparently) struggle with an enteric health issue within the weaner pool, bar odd isolated instances of typical post weaning scour, which would be successfully treated using appropriate water soluble antibiotic.

I have always considered the unit to be extremely well managed, with all accommodation washed and disinfected between occupancies. Piglets are weaned into weaner verandha pens with the provision of turkey drinkers for the first week post weaning to supplement water provision via the nipple drinkers and drinker bowls. Turkey drinkers would be washed and disinfected between each weeks' weaning. Water supply is via a borehole, and water quality is regularly analysed with no detectable problems.

Pigs are fed commercial creep and link rations before moving onto home milled pellets at 18-20 kg and then onto liquid feed through to finish from 35/40 kg. Creep diets were routinely medicated with Zinc Oxide (introduced following the enforced withdrawal of

Maxus), Chlortetracycline and periodically, lincomycin/spectinomycin should clinical scouring become evident.

AS NPA representative on the ZAP Salmonella Steering Group, James was concerned when Salmonella was isolated from scouring weaners in October 06, having never been isolated before or subsequent to this incident. The unit has always been categorised as ZAP Level 1, although the aim has always been to be below 10% positives on this unit. Despite no further weaner pool health issues clinically, the decision was taken with the farm team at the start of 2007 to acidify the water system to the weaner pool to see if this helped to stabilise gut health post weaning.

The water was acidified for the first 5-6 weeks post weaning (between 6 and 18 kg) to enhance the control of enteric pathogens and reduce the (sub-clinical) disease challenge on the pigs sufficiently with the objective of improving performance. The acid was added to the water via an in-line Dosatron automatically, to ensure constant water acidification, the aim being to maintain a water pH of between 3.8 and 4.2. This pH range is recognised as being optimal for the control of enteric organisms such as *E.coli* and *Salmonella* species. Research has demonstrated that certain acids (or combinations) are more beneficial than others in this respect and after careful consideration a product based on formic acid was chosen.

The following table summarises the weaner pool performance (DLWG in grams) in 2006 and 2007. Ideally, there would have been side-by-side comparisons of the treatment and non-treatment groups, but during this two-year period, no significant management changes were made within this department (same stockmen, diets, genetics, weaning age, length of stay in department etc) that would apparently account for the differences noted.

	Q1	Q2	Q3	Q4
2006	333	279	312	343
2007	373	355	372	363

James and the farm team were impressed by the consistently better performance was throughout 2007, with pigs tending to exit the weaner pool some 2 kg heavier. In addition, weekly growth rates were more consistent, producing a more even group of pigs into the grower stage, which continue to perform better than historically. In addition, pigs required therapeutic medication for clinical disease control less frequently, and there was less need for ongoing 'routine' medication of the weaner pool.

The use of organic acid in water on this farm has been shown to improve the performance of the weaner pool, reduce reliance on medication and in so doing reduced the costs of production. The farm team are convinced of the importance of the use of water acidification. James agrees that with the new Zoonoses National Control Plan on the horizon Salmonella control is going to remain a high priority for pig farms, but is absolutely clear when he says "Survival is clearly the number one priority in the current difficult climate. Organic acids have a part to play in controlling Salmonella but the only reason we will continue to use them on this unit in 2008 is because we have seen that there is clearly

a return on investment from their use. As an added bonus it makes managing the pigs from weaning right through to the grower phase much easier.”

Bearing in mind, that this is a unit which did not appear to have a significant health issue within the weaner pool, the potential return on investment on a unit with clinical problems should be even more marked. The impact will vary from farm to farm and the key to good decision making for all costs is to record performance and to measure the effects.