

The use of organic acids for profitable piglets post-weaning

Among feed additives, organic acids are the fastest-growing category on the market and acid blend products show the most promise. Acidification of swine diets is not new: organic acids have been used for more than 50 years to reduce the growth of bacteria and mould contamination of feed, thereby improving feed hygiene. The antimicrobial activity of organic acids and their salts not only helps in feed preservation, but also support animal health and improving performance.

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Performance enhancement has been shown for different types of organic acid, which means improved economic returns for swine producers. Organic acids can help the pigs to create a barrier in the gastrointestinal tract against pathogen bacteria, supporting the proliferation of beneficial bacteria and reducing pH in the stomach and supporting protein digestion by creating the right conditions for the activation of pepsin.

Early challenges

During the weaning period, piglets face several challenges, such as pure protein digestion and pathogen bacterial burden,

which can lead to diarrhoea, weight loss and even mortality. Weight loss during this time can extend the production period of the animals. Common practice in most countries is four week weaning. At this time the piglet has just begun to develop active immunity, which makes them vulnerable. The use of organic acids in the feed could help piglets to counter these issues.

Acidified solutions

The conventional choice for acidification consists of either simple organic acids in liquid form or their salts. Both are relatively inexpensive and tend to be used in high amounts of up to 12kg per ton of compound feed.

Certain organic acids have a synergistic effect – meaning that in combination they show an increased direct antimicrobial effect against pathogens like Salmonella spp. and E. coli.

One drawback of the conventional approach is that acids can take up space in diets that could otherwise be filled with other novel growth promoters or more economical ingredients – creating the

opportunity for higher revenues and/or lower operating costs.

A better way

Research has shown that it is possible to improve the efficacy of the antimicrobial effect of organic acids by combining the right blend of organic acids with a phytochemical, such as cinnamaldehyde, which is known to have its own

Continued on page 10



Fig. 1. Trial 1 results.

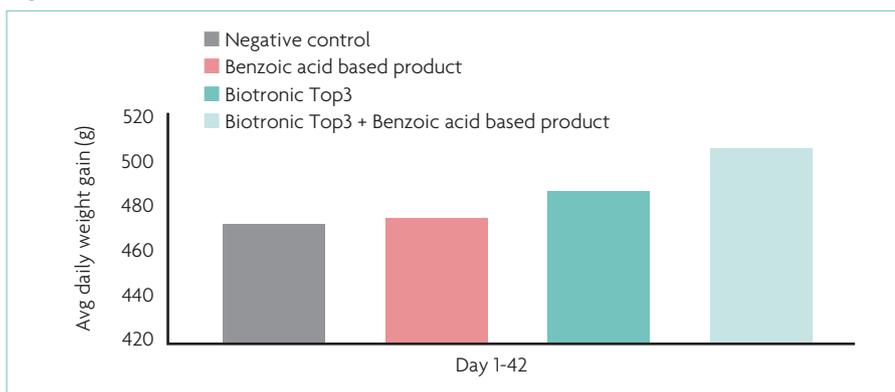
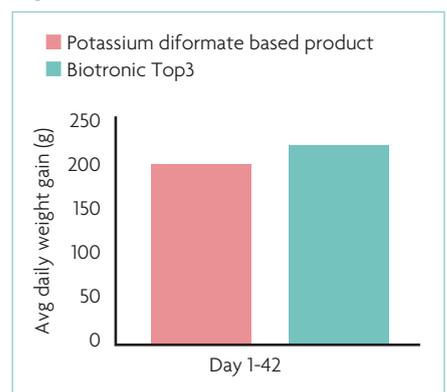


Fig. 2. Trial 2 results.



Continued from page 9

antimicrobial properties, and to couple this combination with the innovative Biomin Permeabilizing Complex which weakens the outer membrane of the Gram-negative bacteria. This allows the antimicrobial substances to more easily enter the bacteria and exert their effects.

Proven results

The combination of the blend of organic acids, cinnamaldehyde and the Biomin Permeabilizing Complex on a sequential release medium as it is in Biotronic Top3, can partially or fully replace the

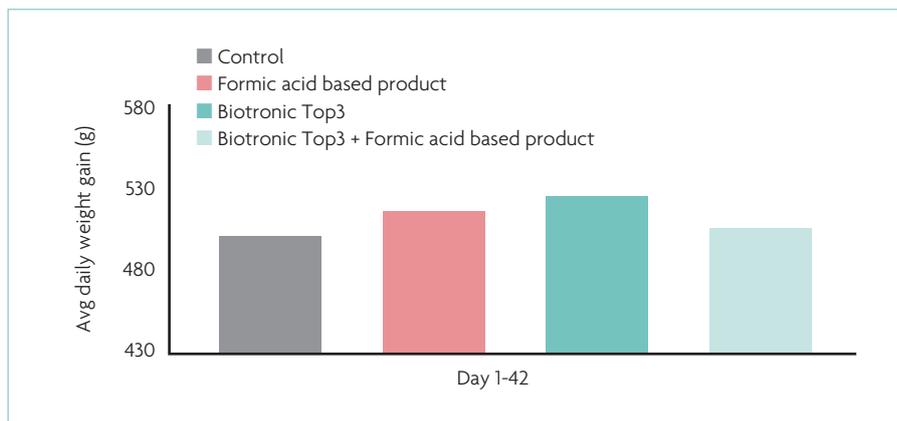


Fig. 3. Trial 3 results.

conventional dietary acid supplementation in weaned piglet diets at lower inclusion levels without affecting or even improving the growth performance of the animals.

Three trials were conducted to determine whether Biotronic Top3 at a lower dose has a similar or even better effectivity than benzoic acid, formic acid or potassium diformate based products.

In all three trials we saw a clear increase in growth performance, with a lower inclusion level from Biotronic Top3.

In the trial where we compared the Biotronic Top3 with the benzoic acid based product (Fig. 1), we could successfully replace the benzoic acid based product with less than half of the inclusion rate of Biotronic Top3.

In this trial the daily weight gain of the animals was increased by 2.5% in the Biotronic Top3 group, and by 6% in the group where the two product were combined compared to the benzoic acid based group.

In the other two trials with the potassium diformate based product and the formic acid based product the growth performance of the Biotronic Top3 groups (8.4% and 1.5% improvement in daily weight gain) were better compared to the other product groups.

In these cases the substitutions were just a quarter of the inclusion rates compared to the other two products. Next to the cost savings, this also provided some place in the nursery diet. The three trials show that the use of synergistically combined products can bring real benefits to the producers.

The combination of different natural substances leads to a synergistic effect in terms of antimicrobial efficacy and enhancement of animal growth performance.

The positive effects of combined products on growth performance were partly related to the supported health of the animals.

The conventional acids replacement with Biotronic Top3 at a lower inclusion level was successful in supporting piglet performance and producer profitability. ■