

Phytogenic blend helps to boost feed strategy and improve performance

Phytogenic feed additives offer multiple benefits in terms of increased feed intake, improved gut health and – crucially for developing piglets – reduced incidence of diarrhoea.

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With restrictions on the use of in-feed antibiotics introduced in a growing number of countries, could this be one of the alternatives feed strategy producers are looking for to support healthy and profitable pig performance?

The production challenges of piglet weaning are well known. Separation from the sow along with environmental and dietary changes often cause stress in young pigs; resulting in a loss of appetite and a corresponding drop in weight.

The animals' immature immune and digestive systems are also susceptible to disease-causing organisms which can disrupt gut integrity.

In this context, preventing the incidence of diarrhoea is a particular area of concern in order to avoid a raft of associated health problems; such as dehydration, weight loss, lower immune function and poor growth performance.

These already challenging conditions have been further exacerbated by the move to phase out the use of in-feed antibiotics,

which have long been used as the first line of defence against certain infections.

So now, more than ever, producers need to be sure that they have the most effective feed strategy in place during this critical period of pig development.

Enhanced nutrition is essential in order to provide a strong growth trajectory and improve the overall health of the animal.

The question, however, is which route will deliver the optimum commercial return?

One area which is the subject of renewed interest is phytogenic feed additives. With proven benefits in terms of maximising feed intake and supporting gut health, these bioactive compounds originally found in plants have much to offer – but have yet to realise their full potential.

A new holistic approach to animal nutrition – known as 'nutribiosis' – looks set to change this view by strengthening scientific understanding of the positive role these ingredients play in optimising pig performance.

Plant power

Phytogenics are aromatic molecules that have been extracted from specific plants or plant parts where they provide varying degrees of antibacterial, antiviral, antifungal, anti-inflammatory and antioxidant properties.

However, these active ingredients



also offer benefits to the health, growth and performance of pigs.

This is the premise behind the development of Enviva EO. This nature identical phytogenic feed additive is a carefully balanced, highly concentrated combination of thymol and cinnamaldehyde.

Formulated following intensive laboratory screening and in vivo research across different animal diets and ages, this phytogenic blend has been proven to resolve a number of common pig production issues when added to feed.

It works in two important ways. Firstly, by stimulating the release of three major digestive enzymes in the pancreas; trypsin, amylase and lipase, which are responsible for the hydrolysis of protein, starch and fat respectively.

By increasing levels in this way, Enviva EO ensures more nutrients are

absorbed from the feed and used as energy for animal growth.

Secondly, as it enters the gut, the blend helps to inhibit pathogens and their potentially damaging effect on health, while simultaneously improving conditions for beneficial bacteria.

Balancing the microbiome in this way supports better health in the animal – most notably helping to combat the widespread problem of diarrhoea among piglets and reducing the presence of *E. coli* in faeces.

Performance and profitability

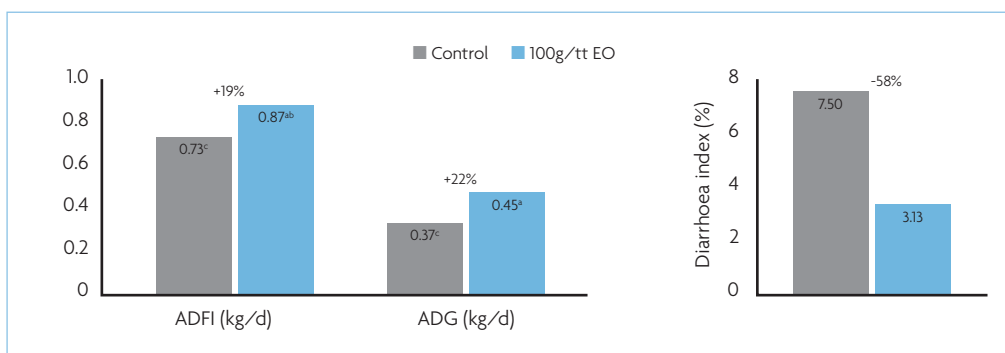
The measurable impact of nutritional intervention with this phytogenic blend is supported by a number of studies. Research found that application of Enviva EO boosted feed intake in weaning pigs by up to 19% and achieved a corresponding improvement in body weight gain of 22%.

In commercial terms, this equated to a net profit gain of \$25.96/ton and net profit saving of over 19% compared to antibiotic growth promoters (AGP) – a considerable cost benefit which supports the viability of Enviva EO as part of an alternative feed strategy to replace or remove in-feed antibiotics.

In addition, Enviva EO proved successful in minimising the severity and incidents of diarrhoea in weaned

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Fig. 1. Enviva EO improves performance and reduces diarrhoea incidence in weaned piglets (36 days).



Continued from page 21 piglets. Cases reduced by a significant 58% during a monitored 36-day period (Fig. 1).

Given the damaging impact this pathology can have on weight gain and the forming microbiome because of the constant shedding, these much lower figures signal a strong foundation for a positive future performance.

In fact, by looking more closely at the interaction between nutrition, the microbiome as well as the gut and immune function, the role of Enviva EO can be further explored.

Synergistic behaviour

This holistic approach to animal nutrition, known as 'nutribiosis', is designed to bring greater scientific understanding to the parameters that govern nutrition, health and the microbiome. This understanding will help swine producers make more informed decisions regarding feed strategy.

It marks a deliberate move away from the traditionally narrow view of gut health, where only certain criteria are within scope such as microbiota, villi height or tight junctions.

Nutribiosis is built on the interplay between the three pillars of

nutrition, the microbiome and gut and immune function. It aims to create a 'favourable nutribiotic state' in the animal; where all the parameters collaborate to optimise the performance and health of the animal.

To this end, optimal alignment of nutrition helps to support a healthy gut microbiome and also optimal digestion and absorption within the gut.

Similarly, optimal development of the microbiome helps to support nutrition by reducing the risk of dysbiosis, while also strengthening the immune system and its response.

When this forward-thinking approach is applied to Enviva EO, it provides a valuable new perspective on the favourable effects of this phytogenic blend on the nutribiotic state in pigs:

- Nutrition: Increased feed intake and subsequent body weight gain through enhanced nutrition from the release of digestive enzymes to break down substrate.
- Microbiome: Balances the microbiome by decreasing pathogens and increasing beneficial bacteria (Fig. 2).
- Gut and immune function: Improves efficiency of the immune system; allowing for better energy usage and decreased collateral damage.

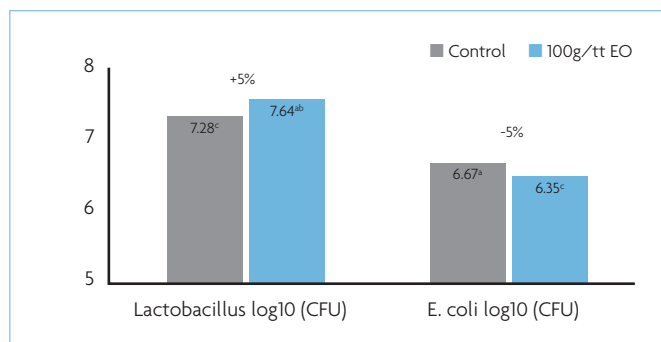


Fig. 2. Enviva EO promotes good bacteria over enteric bacteria in the faeces of weaned piglets (36 days).

Informed choice

Unsurprisingly, selecting the right phytogenic for optimum performance results is not straightforward. Careful consideration needs to be given to the product form.

These plant-derived ingredients can be inherently volatile, so feed processing temperatures traditionally need to be controlled and long-term storage avoided.

They are also rapidly absorbed and metabolised by the animal, which means without high concentrations or slow release mechanisms, the mode of action is no longer effective.

This is why Enviva EO is microencapsulated; it ensures greater stability within the feed and during the feed manufacturing process, while also delivering longer term benefits throughout digestion.

Given the potentially far-reaching benefits of phytogenic feed additives, working with a specialist partner to navigate these issues and develop a targeted feed strategy is likely to be well worth the investment. ■

Enviva EO is not approved for sale in all markets. Consult your local sales representative for availability and approved uses.