# Quality piglet production and performance with oregano essential oil

Whether you finish your own piglets or sell these at or shortly after weaning, ensuring a robust piglet at this time will have a significant impact on lifetime pig performance. Young piglet growth performance is directly related to colostrum and milk intake.

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Driving piglet performance through improved maternal nutrition can be a cost-effective way to optimise piglet gut health which can help to reduce the need for antimicrobials after weaning.

## Maternal oregano essential oil supplementation benefits the sow and her offspring

Recently published work by Hall et al., 2021 highlighted the importance of maternal gut health on the microbial transfer to best support piglet gut health and growth performance prior to and around weaning. Further work has recently been undertaken to understand the effect of oregano essential oil (OEO) on maternal transfer through milk.

A trial managed by Carthage Innovative Swine Solutions (CISS) in the US was undertaken to evaluate the efficacy of a 100% natural OEO feed additive supplemented in sow gestation and lactation diets. Sows were fed either a basal gestation and lactation ration (control) or basal diet supplemented with the OEO (Orego-Stim from Anparo at 500g/tonne).

Supplementation with OEO was shown to improve performance of both the sow and her progeny. Average litter weights were numerically improved, and a 2% reduction in pre-weaning mortality was seen.

As a result of this, the number of piglets weaned was 11% higher for litters from sows fed diets supplemented with OEO (Fig. 1). These improvements provided a potential return on investment for the unit of more than 5:1.

Such improvements may have been as a result of the improved colostrum and milk quality observed in sows fed OEO supplemented diets. During the trial, colostrum and milk samples were collected and submitted for proximate and antibody analysis. Immunoglobulins are specialised antibodies which are passed from the sow to her piglets through the milk.

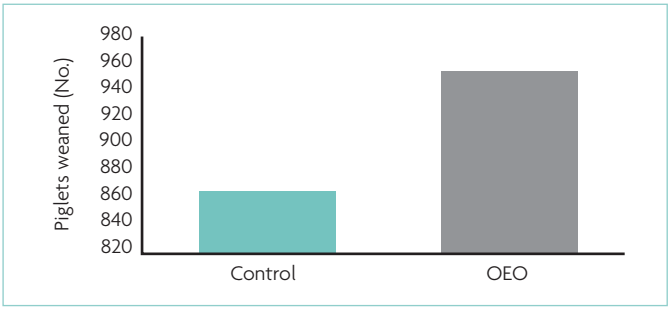
Two of the most important of these are Immunoglobulin G (IgG) and Immunoglobulin A (IgA), both of which are fundamental for piglet gut health and innate immunity. Analysis showed that colostrum samples from OEO supplemented sows had a 26% greater IgA content and that in the milk, both IgA and IgG levels were significantly greater (Fig. 2).

Higher levels in colostrum and milk would better support piglet gut health and may have been a driving factor in the improvements seen in progeny health and performance.

The trial concluded that OEO supplementation can support improved sow lactation performance, leading to an increased number of healthy, robust piglets weaned per sow.

Improving health, particularly prior to and around the time of weaning, can have a significant effect on lifetime performance and medication requirements within the herd.

**Fig. 1. Number of piglets weaned from control fed sows compared to those fed OEO (Orego-Stim, Anparo) supplemented feed (CISS, 2019).**



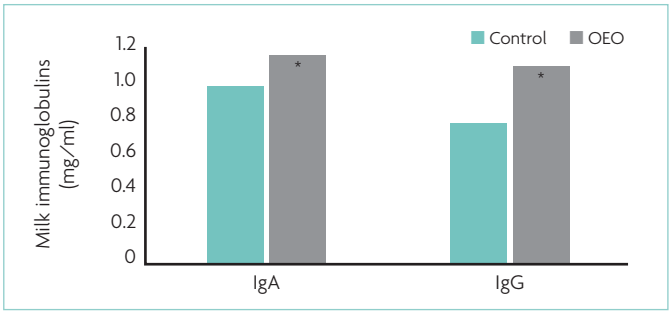




**Fig. 2. Milk immunoglobulin content (mg/ml) in samples from control fed sows compared to OEO (Orego-Stim, Anparo) supplemented sows (CISS, 2019). *Indicates significant difference ($p<0.05$).**

## Supporting lifetime piglet performance in the absence of antimicrobials

Producers focused on reducing antibiotic use rely on a holistic approach to help ensure their animals remain productive and to safeguard profitability. During weaning, piglets are subjected to a massive variety of stressors which can result in digestive disturbances and scours which is often related to a post-weaning growth check.

Reducing the severity and incidence of these post-weaning scours is paramount to minimising antibiotic use in the growing herd.

The supplementation of natural phytogenic additives, such as OEO, has been shown to provide benefit in maintaining good gut health post-weaning, even in the absence of pharmacological levels of zinc.

A recent commercial trial, conducted in Ireland demonstrated that a source of 100% natural, steam distilled OEO, can support piglet performance at weaning in the absence of zinc oxide.

Piglets from sows fed a daily top dress of OEO (Orego-Stim at an equivalent rate of 1kg/tonne from three days prior to farrowing until weaning) were fed creep containing OEO (Orego-Stim at 1kg/tonne).

Piglets from control fed sows were fed control creep diets, which included zinc oxide at 3.1kg/tonne. Results of this trial showed that piglets fed OEO diets were approximately half a kilogram heavier at the end of the nursery period compared to the control, zinc-fed piglets.

In addition, the supplementation of OEO in the absence of zinc did not have a negative impact on mortality or medication use.

Similar results were shown in a trial conducted on a commercial unit in Greece, whereby OEO supplementation was shown to support weaner pig health status and alleviate the impact of post-weaning scours in the absence of antibiotics.

For the first seven days post-weaning all piglets were fed a commercial basal starter diet.

At eight days post-weaning, piglets were randomly allocated to one of four dietary treatment groups:

- Negative control (NC.)
- Colistin added at 1kg/tonne (AB1).
- Baytril added at 2kg/tonne (providing 50g enrofloxacin) (AB2).
- Addition of an oregano essential oil supplement (Orego-Stim, Anparo) at 0.5kg/tonne (OEO).

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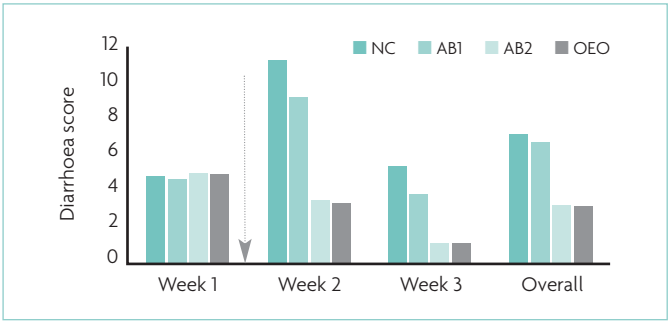


**Fig. 3. Diarrhoea score of weaners from weaning for 21 days (Arrow indicates start of treatment diets); Diarrhoea scores were calculated as (number of piglets in the pen with diarrhoea x days of scouring x diarrhoea scale number).**

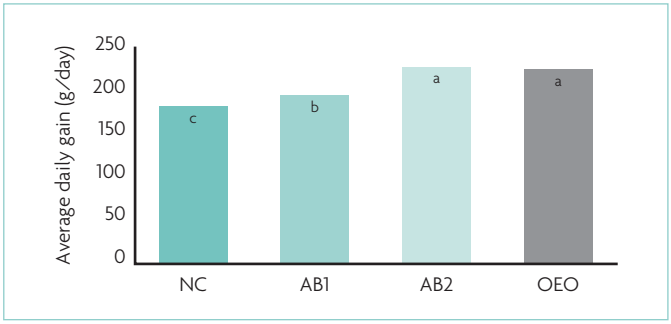


**Fig. 4. Average daily gain from weaning for 21 days. Differing letters indicate significant difference (p<0.05).**

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Results of the trial demonstrated that OEO fed piglets had 0% mortality over the study period, as did piglets fed the diet supplemented with the antibiotic Baytril. This was 11.1% lower than the control group of piglets and 5.6% lower than those fed diets supplemented with the antibiotic colistin. In addition, OEO supplementation gave one of the lowest percentages of total faecal samples that tested positive for E. coli compared to the control and antibiotic treatments.

When considering incidence of scours post-weaning, OEO supplementation reduced diarrhoea counts compared to the control and colistin treated groups, whilst producing a faecal score similar to that of pigs fed Baytril treated diets (Fig. 3). Piglet growth performance was also improved by dietary OEO supplementation, with average daily gain being significantly improved when compared to the negative control or piglets fed diets supplemented with colistin (Fig. 4).

## Natural versus synthetic OEO sources

Oregano essential oil (OEO) has been shown to contain over 100 active compounds, with a complex mode of action. Utilising a natural oil, which is produced to a consistent standard, helps to ensure all compounds are in balance and so the benefits seen from using natural OEO are more comprehensive.

Compounds such as ρ-cymene, carvacrol and thymol are well documented to have a role in appetite enhancement and antioxidant function, as well as being antibacterial and effective in both immunomodulatory and anti-inflammatory processes.

Using a synthetic product which has only one or two of these compounds cannot provide the multifactorial benefits of the natural oil.

OEO is well-documented to provide a wide range of benefits and 100% natural OEO feed supplements are available as a powder, liquid, or as a top dressing for daily sow rations, which enables greater flexibility of application for pig producers.

OEO has been shown to benefit the sow and her progeny, helping to support the production of quality piglets though both maternal feeding and when fed directly to the piglet to support performance during periods of stress, such as weaning. ■

**References are available from the author on request**