Support lifetime performance with oregano essential oil

The properties of natural oregano essential oil (OEO) are numerous and well-documented. Sources of the phytogenic derived specifically from the whole plant through steam distillation have been shown to provide a wide range of properties, including antimicrobial, antioxidant, immunomodulatory and anti-inflammatory functions.

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Recent trials conducted with Orego-Stim, a consistent and high-quality source of OEO produced by Anparo plc, have demonstrated benefits to both calving and dairy cow enterprises.

Securing the health and performance of the herd at all life stages helps to protect the substantial investment made by dairy producers through maintaining the productive lifespan for longer.

Supporting calf health and performance

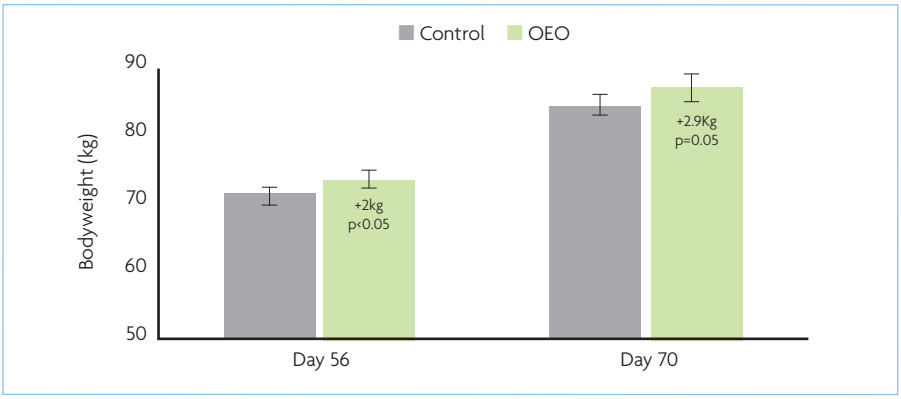
Gut health is vital in supporting optimal calf growth and enhancing lifetime performance. Maintaining a diverse and well-balanced gut microbiome is important, particularly for calves as more than 50% of calf mortality cases are associated with gut health issues and scouring.

In addition to the properties associated with natural OEO sources, oregano is also a potent aromatic compound that can help to enhance the appetite of calves and support feed intakes.

Heavier calves at weaning and those with a higher average daily gain from birth to weaning have been shown to have higher milk production during first lactation.

In addition, a greater average daily gain and bodyweight has been associated with improved fertility in heifers.

Fig. 1. Calf bodyweight (kg) at day 56 (weaning) and at day 70. (OEO; Orego-Stim Liquid, Anparo plc.). (Craig et al., 2020).



An independent trial was recently carried out at the AgriFood and Biosciences Institute (AFBI) in Northern Ireland and later published in order to assess the efficacy of OEO (Orego-Stim Liquid, Anparo plc) on calf growth. Calves fed milk replacer supplemented with the OEO were 2kg heavier at weaning (56 days of age) and 2.9kg heavier by 70 days of age (Fig. 1). Compared to control calves fed milk replacer with no OEO added, the OEO supplemented calves also had a 6.8% greater average daily gain.

In addition to supporting calf growth performance, OEO supplementation in the form of Orego-Stim Liquid has also been shown to help lower cryptosporidia shedding. A major cause of calf scour, cryptosporidia causes long-term damage to the lining of the gut, impaired nutrient absorption, poor growth performance and can ultimately prove fatal.

Results of study

The study, conducted at the University of Reading, found that calves fed waste milk supplemented with Orego-Stim Liquid had 62% lower levels of cryptosporidia in their faeces compared to calves fed a control diet of waste milk with no supplementation.

In addition, the trial reported that OEO-supplemented calves had a greater weight

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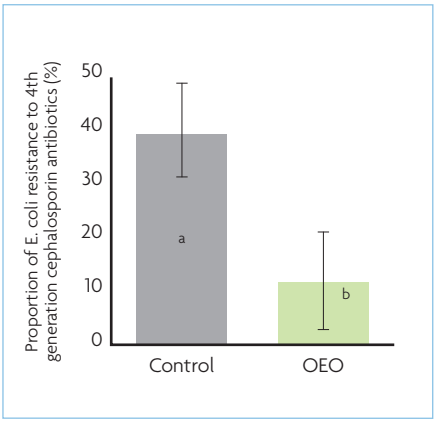

Fig. 2. Proportion of E. coli resistant to 4th generation cephalosporin antibiotics (%) in the faeces of dairy calves fed waste milk. (OEO; Orego-Stim Liquid, Anpario plc). Different letters indicate significant difference (p<0.001). (Ray et al., 2019).

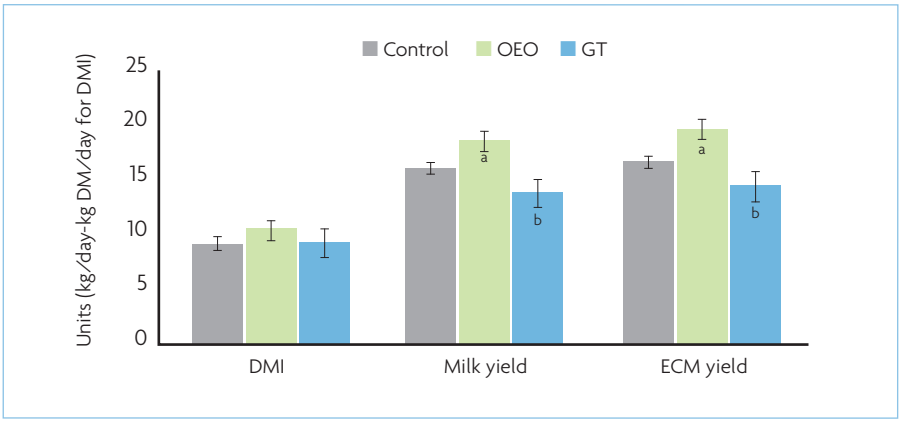

Fig. 3. Dry matter intake (DMI) (kg DM/day), milk yield (kg/day) and energy corrected milk yield (ECM) (kg/day) post-calving in cows from the control group (CON), OEO supplemented group (Orego-Stim, Anpario plc) or the green tea extract supplemented group (GT). Different letters indicate significant difference (p<0.01). (Stivanin et al., 2019).

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gain at 10 days of age, with an additional 186g of bodyweight gained per day.

The OEO phytogenic could also be a useful tool in supporting efforts to minimise antimicrobial resistance (AMR), following a recent trial where Orego-Stim was awarded a patent for reducing antimicrobial-resistant bacteria in dairy calves.

AMR is a global concern, particularly when it includes resistance to third and fourth generation cephalosporins which are listed as 'Highest Priority Critically Important Antimicrobials' by the World Health Organisation.

A successful research programme with the University of Reading showed a significant reduction in antimicrobial-resistant E. coli in the faeces of dairy calves. In the trial, calves fed OEO (Orego-Stim Liquid, Anpario plc) supplemented waste milk had significantly lower levels of E. coli resistant to 4th generation cephalosporins in the faeces.

In control-fed calves, 44.1% of E. coli was resistant to the antibiotic, however, this was reduced to just 12.6% when the 100% OEO additive was offered (Fig. 2). Interestingly, this effect was also maintained even after OEO supplementation had stopped at 10 days of age.

Supporting dairy cow health and performance

With OEO supplementation benefits to the calf have been well-established, more attention is now turning to the benefits these phytogenics may confer in mature animals, which are most at risk from higher levels of metabolic stress.

Transition cows are at particularly high risk as the transition period both pre- and post-calving can increase oxidative stress. This increase can make transition cows more susceptible to impaired immune function, elevating the risk of disease occurrence.

A recent trial carried out at the Federal University of Rio Grande do Sul in Brazil aimed to determine if one of two natural phytogenic dietary supplements, OEO (Orego-Stim Powder, Anpario plc) or green tea extract may help to support transition cow health and performance.

It was found that cows offered OEO pre-calving had fewer visits to feeders, where no feed was consumed, and tended to spend more time ruminating than other groups. This may allow for better feed digestion and energy utilisation and was possibly a reason for the higher plasma calcium found in these animals.

Incidences of aggressive episodes in cows pre-calving were significantly reduced in OEO and green tea-supplemented cows compared to the control group, indicating that these phytogenic supplements had a calming influence on the cows' behaviour, thus helping to minimise stress.

Post-calving, the benefits seen with OEO supplementation were substantial. Cows from the OEO-supplemented group tended to have higher dry matter intakes (DMI) and produced significantly greater milk yields and energy corrected milk yields than green tea supplementation and tended to produce numerically more than control cows (Fig. 3).

Cows subjected to oxidative stress are likely to have impaired productivity as well as reduced immune function.

Measuring the somatic cell count (SCC) of milk can be a good indicator of cow health, with high levels suggesting infection as well as causing an altered mineral flow in the udder, which can result in a higher pH in the milk and lower milk production.

It was found that cows receiving dietary OEO supplementation had significantly lower SCC, by 62% and 50% compared to levels in milk from cows in the control or green tea groups respectively.

In addition, blood samples indicated that OEO supplementation helped to lower the presence of harmful free radicals both pre- and post-calving, demonstrating effective antioxidant activity and a reduced level of oxidative stress.

Not all oregano is the same

It is well known that the essential oils from oregano plants across the world can vary widely in the content and concentration of active compounds. This variation can depend on location, soil type, climate and altitude. In other instances, synthetics are used to match natural components or boost concentrations, however, this means that the 100+ active compounds within natural oregano essential oil, which work synergistically, are lost.

Therefore, using a steam-distilled oregano essential oil which is 100% natural is very important in ensuring the final product works consistently batch after batch. Orego-Stim from Anpario is available as a powder or a liquid for application through the diet, milk, or via inclusion in milk replacers, offering flexibility in application to help support dairy and calf gut health for optimum lifetime performance. ■

References are available from the author on request