Anatara announces successful piglet study

Key highlight

- **Under the conditions of this proof-of-concept study and given the experimental outcomes, BONIFF could be considered as a replacement for a non-physiological level of ZnO with commercial levels of additives in a semi-moist extruded creep (SMEC) piglet diet.**

MELBOURNE, 6 August 2021: Anatara Lifesciences (ASX: ANR), a developer of evidence based solutions for gastrointestinal diseases in animals and humans, is pleased to announce the successful completion of a challenge study in weaner piglets with its recently developed bromelain-based formulation (BONIFF).

To address weaner piglet scour, which is estimated to cost the Australian pig industry more than $7 million per year[1], Anatara and Ridley initiated a weaner piglet enterotoxigenic *E. coli* (ETEC) challenge study, utilising Anatara's bromelain-based formulation (BONIFF). The study was conducted by Murdoch University, with funding from the Australasian Pork Research Institute Ltd.

Detach® is a commercial product registered in Australia (Anatara Lifesciences) for the prevention of post-weaning diarrhoea (PWD) in pigs and has been shown to reduce PWD and provide similar protection to antimicrobial agents including ZnO (Holyoake and Mynott, 2017) as well as reduce antimicrobial resistance (AMR) (Collins and Bowring, 2017). However, Detach® is a paste requiring labour and effort to deliver the compound by drenching. BONIFF is a revised formulation that is applied to dry feed for piglets after weaning, reducing labour input and simplifying the entire process. Semi-moist extruded creep feed (SMEC) has previously been shown to improve performance after weaning (Pork Cooperative Research Centre Final Report 2009). BONIFF in combination with SMEC as a feed has demonstrated the potential to (a) reduce PWD caused by ETEC and (b) improve performance in the post-weaning period.

The standard diet and the BONIFF-SMEC diets did not contain a pharmacological level of ZnO nor a commercial level of organic acid products (organic acids for manufacturing purposes only were added), whereas the SMEC diet alone (Treatment 5) contained commercially relevant levels of ZnO, organic acids and phytogenic compounds.

In general, although indicating only a statistical trend ($P > 0.2$), pigs fed the BONIFF-SMEC diets and the SMEC (only) diet were heavier, by ~6-11% respectively, at the end of the experiment compared to pigs fed the Standard diet, and not different to each other. This difference appeared to be caused by a significantly faster growth rate particularly in days 7-11 and days 12-13 after weaning that corresponded to a (numerically) higher daily feed intake in those periods. These periods coincided with the immediate time after ETEC inoculation and the change on day 11 to the common weaner

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diet, respectively. Intriguingly, days 7-11 was the period where pigs fed BONIFF-SMEC and SMEC diet alone (Treatment 5) generally showed more loose faeces and a higher diarrhoea index and received more medications.

In these circumstances the product combination (in the case of BONIFF-SMEC) performance was not only able to be maintained but was greater than the Standard diet (i.e. not SMEC). For clarity, none of these diets contained commercially relevant levels of antimicrobial compounds.

The growth performance data also demonstrated that pigs fed the BONIFF-SMEC diet performed equally, both with and without ETEC inoculation, to pigs fed the SMEC diet alone (Treatment 5) that comprised a pharmacological level of ZnO and levels of organic acids and phytogenics seen commercially, to assist in transitioning pigs in the post-weaning period. This suggests that at least under the conditions of this experiment, BONIFF could be considered as a replacement for these additives.

CEO Steve Lydeamore commented, ”Anatara is pleased to have met its aim to develop alternative administration options and proof of concept in another species for its bromelain-based products. Anatara’s animal health portfolio now includes Detach®, ANR-pf for poultry and, BONIFF, an in-feed formulation for weaner piglets.”

Detach® is an APVMA approved, non-antibiotic approach to aid in the control of diarrheal disease (known as “scour” which can be a debilitating and, in some cases, life-threatening condition). It is protected by the recently announced patent number AU2019204496 entitled “Antidiarrhoea formulation which avoids antimicrobial resistance”.

In February 2021, Anatara announced the successful completion of the poultry challenge trial “Efficacy of ANR-pf on the performance of broilers subject to subclinical and necrotic enteritis challenges”. ANR-pf is Anatara’s proprietary enriched formulation for poultry in water, designed to allow the full delivery of key additives in a quick and flexible dosing method on-farm even when stock illness is a concern.

CEO Steve Lydeamore added, “With this successful piglet study in hand, commercialisation discussions will now commence with pig producers and animal feed/nutrition companies.”

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Post-weaning diarrhoea (PWD) is one of the major problems in the Australian (and world) swine industries causing economic losses and decreases in the performance and survival of weaned pigs. The diarrhoea is caused by strains (types) of enterotoxigenic E. coli (ETEC) that adhere to receptors on the enterocytes and colonise the surface of the small intestine. The enterotoxins produced enhance the net secretion of water (i.e., into the intestines) to cause diarrhoea (Pluske et al., 2018). Traditionally antibiotics have been used for the prophylactic treatment of these pathogenic bacteria. However, rising concerns about antimicrobial resistance (AMR) caused by feeding antibiotics or other compounds such as zinc oxide (ZnO) and the ban of antibiotic-based growth promoters (AGP) and prophylactic antibiotic use in a growing number of countries has compelled the search for alternatives to in-feed antibiotics (Pluske, 2013). The use of medicinal zinc oxide (ZnO) to prevent diarrhoea post-weaning will be banned in the EU from 2022. (European Medicines Agency 2017). The issue of AMR is growing worldwide and therefore in the pork industry (Pollock et al., 2020), alternatives to traditional preventative compounds such as ZnO and AGP are urgently needed to maintain pig health and welfare.

[1] https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/livestock/animal-welfare/pests-diseasesdisorders/piglet-scours

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About Anatara Lifesciences Ltd

Anatara Lifesciences Ltd (ASX:ANR) is developing and commercialising innovative, evidence-based products for gastrointestinal health where there is significant unmet need. Anatara is a life sciences company with expertise in developing products for animal and human health. Anatara is focused on building a pipeline of human gastrointestinal health products. Underlying this product development program is our commitment to delivering real outcomes for patients and strong value for our shareholders.