

Antibiotic reduction: what can phytogenic additives do?

One of the main objectives in poultry production is to reduce the use of antibiotics, which is also driven by consumer demand. In addition to therapeutic application, a high proportion are still used as antibiotic growth promoters (AGPs).

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Reducing antibiotics, and especially AGPs, is an important factor in the reduction and prevention of resistance and supporting the sustainability of broiler production. In this regard, a holistic approach should always be aimed for. This includes farm management, farm health, the gut flora and integrity and feed and nutrient intake.

Within the feed industry research is decisive in the development of innovations. A suitable AGP replacement should protect animals from negative effects and improve the health of the digestive system.

A major challenge

One of the biggest challenges in broiler production is still enteric infections. Coccidiosis and clostridium are the most economically important diseases. Usually they are diagnosed between three and six weeks. As soon as one of these diseases occurs, it stimulates an infection with the other. As a consequence, animals are mostly stricken with both. In order to prevent an outbreak at all, it is therefore important to support and strengthen animals' general condition.

To compare the efficiency of preventive measures, one possible method is to conduct challenge trials. In such challenge evaluations, *Eimeria* species are frequently used as a trigger for coccidiosis. In poultry there are seven actual valid species.

One of them is *Eimeria tenella*, which is known to infect the caecum

with a high pathogenicity and haemorrhagic inflammation. It causes a high morbidity and mortality. *Eimeria tenella* includes *Eimeria* spp., which is a well-known acquisition parameter in trials.

A promising alternative

The conventional variant to support performance is the use of antibiotic growth promoters. Feed additives have already been successfully implemented for years in exchange for AGPs.

Among those alternative feed additives, one of the most promising is the group of phytogenic products. These additives often contain medicinal plants, which have been in use for centuries all over the world for the treatment of human diseases. But does a phytogenic additive have the same effect as an antibiotic program during a challenge assessment with *Eimeria* spp.?

Eimeria spp. challenge

A challenge trial with broiler chicks was performed to evaluate the effect of a phytogenic additive (AntaPhyt MO, Dr. Eckel Animal Nutrition GmbH & Co. KG). For this, the impact of the phytogenic additive was compared to a negative control (NC) and a positive control (PC) with an AGP programme during the induced dysbiosis with *Eimeria* spp.

A total of 1,020 one-day old broiler chicks (Ross 308) were randomly

divided into three dietary treatment groups. Each group comprised 34 birds with 10 repetitions. All birds were fed in two nutritional phases (starter: 1-21 days and grower: 22-40 days) with a maize-soybean-meal-based diet in mash form.

No additive was included in the NC while AGPs with coccidiostats were included in the PC group's diet.

The third group received a phytogenic feed additive (NC +300g/t AntaPhyt MO, Dr. Eckel Animal Nutrition GmbH & Co. KG).

On day 14, all birds were infected with a vaccinal strain of *Eimeria* spp. The pathogens were administered orally in the drinking water. The infections and intestinal immune response were assessed in terms of performance (21 days and 40 days) and the intestinal length as gut health factor (21 days).

Positive effects

The daily weight gain in the phytogenic group was significantly higher than that in the PC group over the 40-day trial. Additionally, a better FCR was observed and the mortality was lower in comparison to the NC and PC groups (Fig. 1).

These improvements result in an enhanced European Production Efficiency Factor (EPEF) in the group receiving AntaPhyt MO (458) compared to the NC (445) and PC (438) groups. In terms of intestinal health, birds receiving the phytogenic additive had numerically longer intestines compared to the NC and PC groups (Fig. 2).

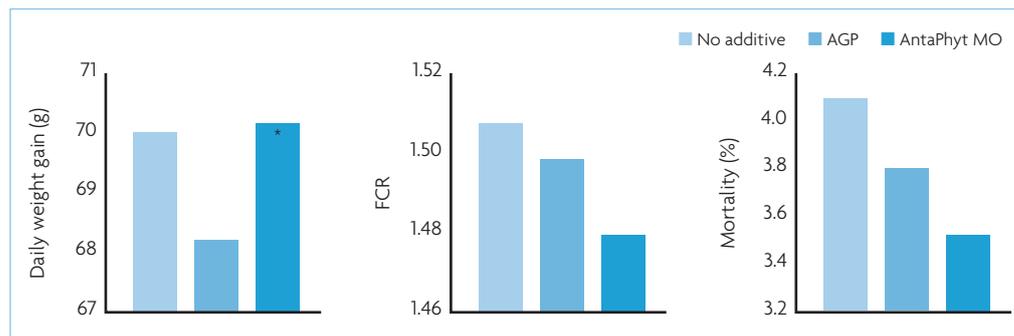


Fig. 1. Daily weight gain, FCR and mortality in the NC (no additive), PC (AGP) and AntaPhyt MO (*p<0.05) groups.

Into an AGP-free future

In modern animal husbandry it is possible to achieve good health and high performance without the addition of AGPs. AntaPhyt MO increases broiler performance during *Eimeria* spp. infection. The phytogenic feed additive shows better effects than an AGP programme in terms of weight gain, FCR, mortality and gut health.

Consequently, the phytogenic feed additive AntaPhyt MO appears to be a beneficial and more sustainable alternative to the AGP programme investigated in the trial. The phytogenic feed additive thus allows for a reduction of antibiotics and a higher performance at the same time – an issue of great significance when it comes to the future of human health and society. ■

Fig. 2. Intestinal length of broilers in the NC (no additive), PC (AGP) and AntaPhyt MO groups.

