Synergistic effect of bioactive herbal extracts in gut flora stabilisation

As consumers around the world demand antibiotic-free animal husbandry, bioactive herbal components present an effective solution for farmers to ensure animal health.

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Throughout the last decade, the antimicrobial susceptibility of pathogens decreased significantly, to the point where in several cases multiple antibiotic resistance has been experienced. Driven by these global health issues and consumer demand, governments are pushing farmers to reduce antibiotic use in the poultry industry, particularly when the antibiotics are important for human healthcare too.

Additionally, emerging dysbiosis of the intestinal microbiota and incidence of subclinical diseases like necrotic enteritis cause significant economic losses for the poultry industry.

Colonisation of the intestinal tract by pathogens (mainly Clostridium) can reduce feed intake, feed conversion rates and bird health in general. The infection can quickly spread within the flock, pathogens rapidly multiply inside the gut of infected birds and are shed in the faeces in high numbers, serving as a vector to spread the disease to the entire flock.

All these factors point in the direction of developing new natural alternatives. Preventing dysbiosis improves animal performance, health and welfare, as well as reduce the antimicrobial treatments of animals.

Herbal based feed additives represent a traditional way of controlling dysbiosis by keeping the intestinal flora in a natural balance, while nourishing the intestinal epithelium. As a result of 30 years of research, Dr Bata Ltd developed Herbanoplex CP, a feed additive containing bioactive herbal extracts.

This additive improves the absorption of nutrients and due to its immunostimulatory effect, improve the body's resilience. The bioactive ingredients of the herbal feed additive have an additional regulating effect on the pathobiome, which is enhanced by the synergism with the prebiotic and antioxidant components.

Herbanoplex CP contains a synergistic combination of phenolic bioactive components like phenols, polyphenols, organic acids and natural prebiotic compounds. This unique composition keeps the microbiome in balance and promotes proliferation of beneficial microbes, thus reducing the use of antibiotics.

Scientific trials

Scientific trials around the world have demonstrated that antibiotic growth promoters can successfully be replaced by these bioactive herbal products.

The effect of Herbanoplex CP on the production parameters was tested in comparison to Bacitracin Methylene Disalicylate (BMD) in a layer farm trial with normal hygienic standards. The experiment was carried out in Taiping, Malaysia in November 2019 and lasted 32 weeks.

The trial included two groups of 49,000 hens at 22 weeks with identical housing and feed conditions. Dosage of Herbanoplex CP was 1kg/t and BMD was included at 50ppm. During the trial, automated laying cages monitored the egg production constantly, data on mortality and feed consumption were recorded daily and the percentage of egg production intensity was calculated. The results of the trial are graphically presented in the figures.

Fig. 1 shows egg production intensity is similar in both the Herbanoplex CP treated group and the BMD containing group.

In terms of the average egg production intensity during the trial, significantly ($p<0.05$) better results were achieved in the Herbanoplex CP group (95.1%) compared to the BMD group (94.2%). Meanwhile, mortality was 0.3% lower in the Herbanoplex CP group (1.92%) compared to the BMD group (2.22%) (Fig. 2).

No statistically significant differences were observed in the feed or drinking water consumption during the trial between the two treatment groups.

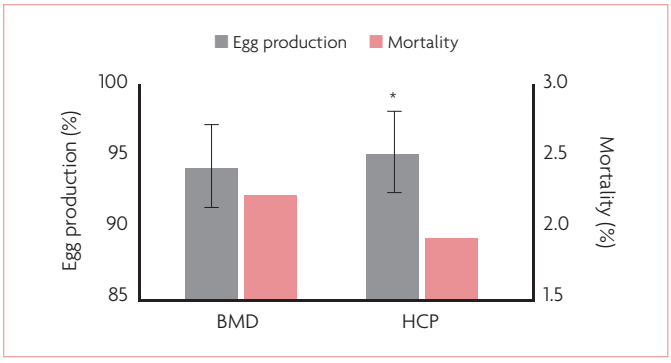
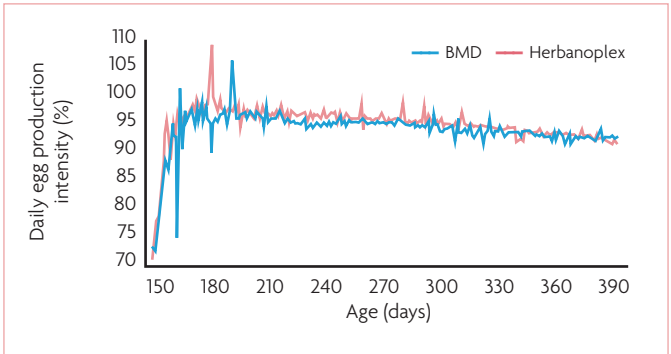


Fig. 2. The use of BMD and Herbanoplex CP shows equal economic results in industrial egg production.

Fig. 1. The use of Herbanoplex CP and BMD shows similar egg production parameters in industrial egg production.



Growing need for effective alternatives

Using antibiotics in sub-therapeutic dosages was for a long time a general tool to control diseases in the intestinal tract, thus improving the productivity of laying hens.

The misuse of these important healthcare agents in animal husbandry contributed to the development of multiple resistances of pathogens, and many drugs have become ineffective in the case of clinical infections.

Depending on the price of the drug, many have further increased their dose in response to resistance. As consumers become more aware and legislators restrict the use of antibiotics, there is a growing need for effective alternatives.

The trial results and calculations for return on investment show that Herbanoplex CP is an effective and profitable alternative to antibiotics, such as BMD in the example above.

In addition, the use of bioactive herbal extracts prevents gastro-intestinal diseases and promotes production intensity and persistence with a sustainable profit per bird.

Herbs and essential oils have been used for centuries both in humans and animals, thus their efficacy and safety is ensured.

Currently the ongoing research concerns their mechanism of action, as these alternatives are gaining more and more importance in achieving antibiotic-free animal production. ■