



The effect of encapsulated butyric acid and zinc on livability and litter quality in toms raised without antibiotics

Overview

Butyric acid is a by-product of microbial fermentation of products such as non-starch polysaccharides. It is considered important for normal development of epithelial cells.¹ Additionally, butyric acid has a positive effect on intestinal integrity by affecting the tight junctions^{2,3} and promoting healing of the intestinal epithelium.⁴ Zinc, on the other hand, enhances the expression of the tight junction proteins: occludin, claudin-1 and Zo-1.^{5,6} Butyric acid and zinc have complementary modes of action; they both positively affect intestinal health.

Encapsulated butyric acid and zinc (BPZ) has been shown to improve growth performance and gut integrity of broilers.^{7,8,9} However, the effect of BPZ on livability and performance in toms has yet to be determined. The aim of the present study was to evaluate the impact of BPZ on performance parameters in toms.

Materials and Methods

The present trial was conducted at an antibiotic free (ABF) turkey complex in Ohio. A paired house trial was conducted with two treatment houses and two control houses. Each 20,000 sq. ft. house consisted of 6,000 poult. BPZ was added to the feed at a rate of 1lb/ton in the two treatment houses during the entire grow-out period (20 weeks). The ventilation utilized in each house was a combination of power and natural ventilation with curtains and side tunnel fans. The water was supplied by bell drinkers, and the feed was supplied by feed pans (96 feed pans/6,000 birds). The litter was composted in piles between flocks and reused. The houses were cleaned out once a year. Livability and litter humidity were collected during the duration of the trial (20 weeks). Due to the uniqueness of the trial, no statistical analysis was performed.

Results

Adding BPZ to the diet improved livability by 2% compared to the control (Figure 1). Through customer observations, birds supplemented with BPZ had drier litter compared to control houses. When intestinal integrity is maintained, nutrient absorption is improved; hence, less is excreted. Therefore, improved gut integrity might translate to drier litter. These results are in agreement with previous work that has shown improvement in growth performance and gut integrity of broilers with BPZ.^{7,8,9}

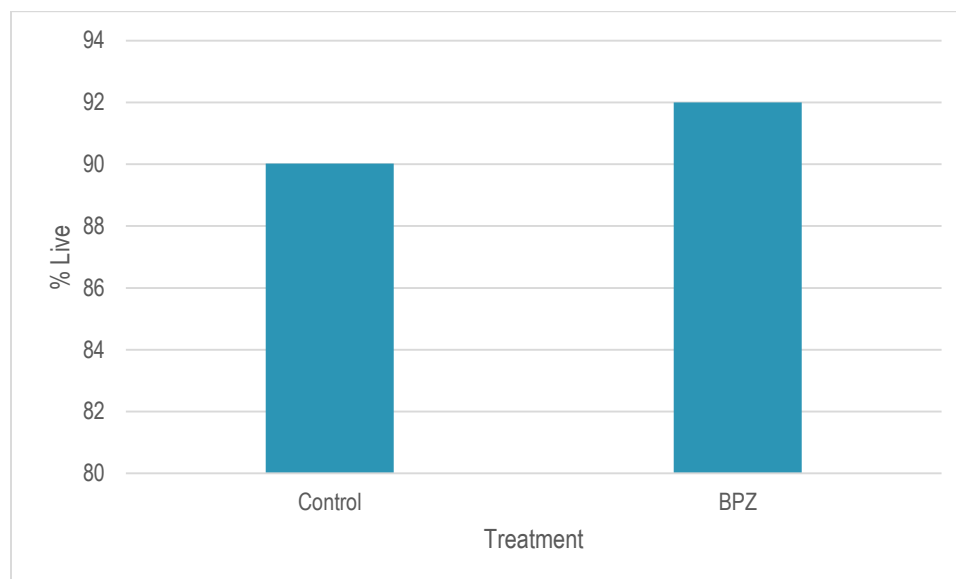


Figure 1. Effect of Encapsulated Butyric Acid and Zinc (BPZ) on toms livability (%)

Conclusions

BPZ fed toms showed improvement in livability when compared to the control group, which could be related to a more intact intestinal barrier. The humidity of the litter was also reduced in houses with toms fed BPZ which could indicate drier droppings, leading to the drier litter.

References

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