Research Notes

ARM & HAMMER

CERTILLUS reduced gastrointestinal *E. coli* levels in broilers.

CERTILLUS™ Targeted Microbial Solutions use proprietary strains of *Bacillus* selected to combat specific pathogenic challenges.

STUDY OVERVIEW

- This study[1] was designed to determine the effect of the proprietary *Bacillus* strains in CERTILLUS on levels of avian pathogenic *E. coli* (APEC) in broiler gastrointestinal tracts (GITs).
- Thirty-six broilers from twelve different flocks/farms, ranging from 8 – 34 days of age, being fed a competitive product were sampled. The average baseline APEC level was measured at $2.5x10^6$ CFU/g.
- A CERTILLUS blend was formulated based on the bacterial challenges evidenced in the first sampling and fed for six months.
- After six months, GIT samples were collected from broilers (n=45) across 15 flocks/farms (including the 12 in the initial sampling) ranging from 7 – 33 days of age.
- APEC levels were retested from this sampling. Bacteriocin assay results indicated a CERTILLUS re-formulation. The CERTILLUS blend was adjusted accordingly and fed for another six months.
- A third sampling was conducted using GIT samples collected from broilers (n=45) across 15 flocks/farms (same flocks/farms as in the second sampling) ranging from 7 – 33 days of age. APEC levels were retested.
- The study used historical data to compare APEC levels and genotype of pre-treatment GITs vs. GITs of broilers fed CERTILLUS.

RESULTS

- After the first 6 months of feeding CERTILLUS, the average APEC level for broilers was 93% lower than during the initial test of birds on the competitive product (measured at 1.7×10^5 CFU/g) (Fig. 1).
- After the second 6 months, using the reformulated CERTILLUS blend, the average APEC level measured 99% lower than during the initial test of birds on the competitive product (measured at 1.9×10^3 CFU/g) (Fig. 1).

FIGURE 1: APEC Reduction Over Time (CFU/g)

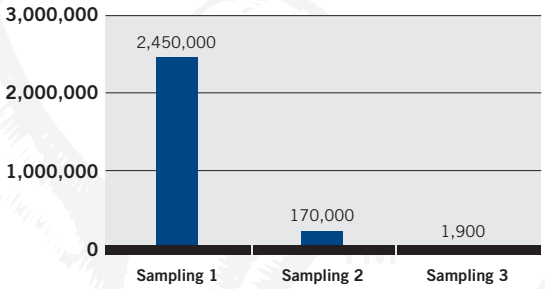
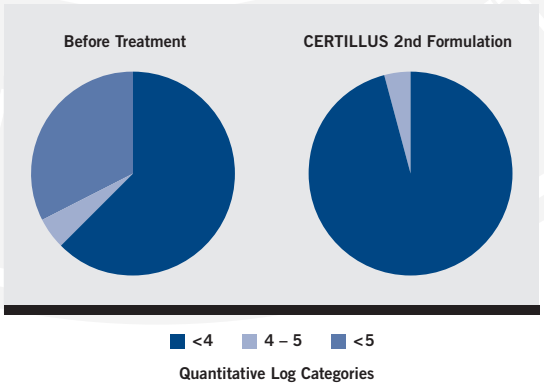


FIGURE 2: Categorical Frequency of Birds' APEC Levels

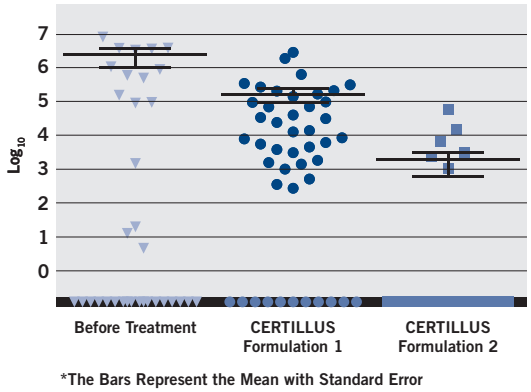


- Associated with the decrease in APEC, CERTILLUS™ use improved average feed conversion ratios across different production systems (Fig. 4).

CONCLUSION

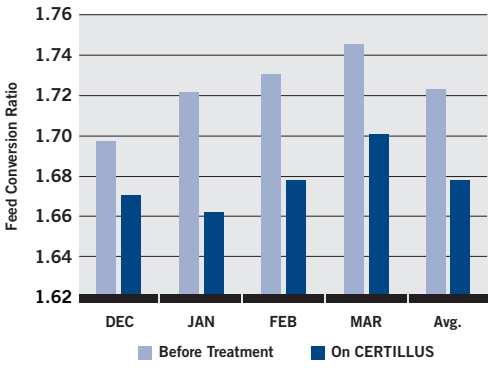
- Inclusion of CERTILLUS in commercial broiler diets throughout the production cycle may reduce APEC populations in GI tracts and improve broiler performance.

FIGURE 3: APEC Levels (CFU/g) by Sampling Session.*



*The Bars Represent the Mean with Standard Error

FIGURE 4: Feed Conversion (Year-over-Year Comparison)



1 Kangas R, Hutchison E, Anderson S, Vang E. Monitoring the efficacy of a *Bacillus* DFM on GI microbiota across time and product formulation. *Internal ABS Poultry Res Review* 2015;61:1-13.