

Research Notes

Arm & Hammer Animal and Food Production



CERTILLUS reduced avian pathogenic *E. coli* and *Clostridium perfringens* in a commercial broiler complex

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

STUDY OVERVIEW

A recent study¹ conducted at a commercial U.S. broiler production facility evaluated the effect of CERTILLUS on avian pathogenic *E. coli* (APEC) and *C. perfringens* (CP) in broiler gastrointestinal tracts (GITs). Historical data was used to compare changes in pathogen levels after CERTILLUS was added to the diet.

Baseline Sampling

- 30 broiler GITs were sampled in birds ages 6 – 37 days prior to feeding CERTILLUS.
- 53 percent of broilers had detectable levels of APEC.
- 73 percent of broilers had detectable levels of CP.

On-Product Sampling

- Follow-up samples were taken in subsequent flocks in the commercial production system.
- Broilers with detectable levels of APEC dropped from 53% to 12% over the course of the study.
- Broilers with detectable levels of CP dropped from 73% to 30% over the course of the study.

TABLE 1: BIENNIAL SAMPLING SESSIONS

Sampling Sessions	Sample Date	Broilers	Age Range	Percent of broilers with detectable levels of APEC	Birds with detectable levels of <i>C. perfringens</i>
Pre CERTILLUS	Aug 2017	30	6 – 37 days	53%	73%
CERTILLUS	Feb 2018	32	7 – 35 days	34%	28%
CERTILLUS	Aug 2018	36	8 – 40 days	28%	75%
CERTILLUS	Feb 2019	33	7 – 36 days	12%	30%

THE STANDARD OF PURITY

SUMMARY

- Among broilers fed CERTILLUS™ APEC levels decreased across multiple samplings (Fig. 1), fewer birds had elevated levels of APEC (Fig. 2), and the frequency of virulence associated genes decreased (Fig. 3).

FIGURE 1: Levels of APEC of individual broilers over four sampling sessions

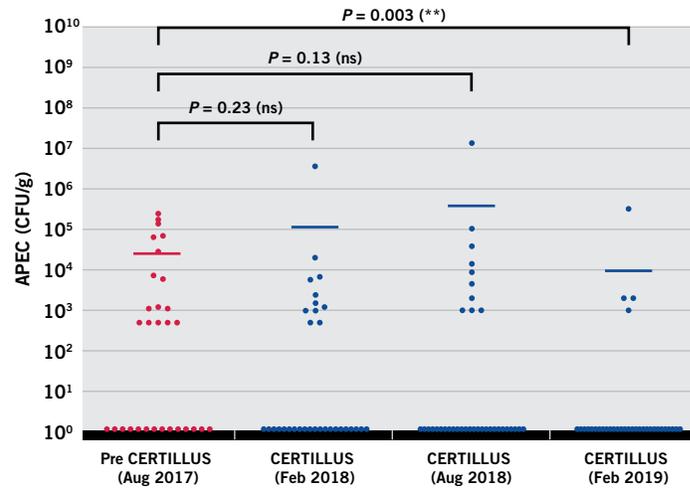


FIGURE 2: Percent of birds with APEC within each quantitative level over four sampling sessions

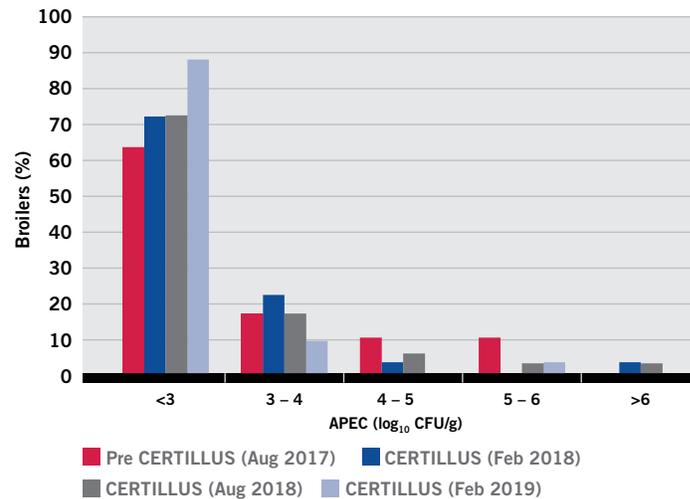
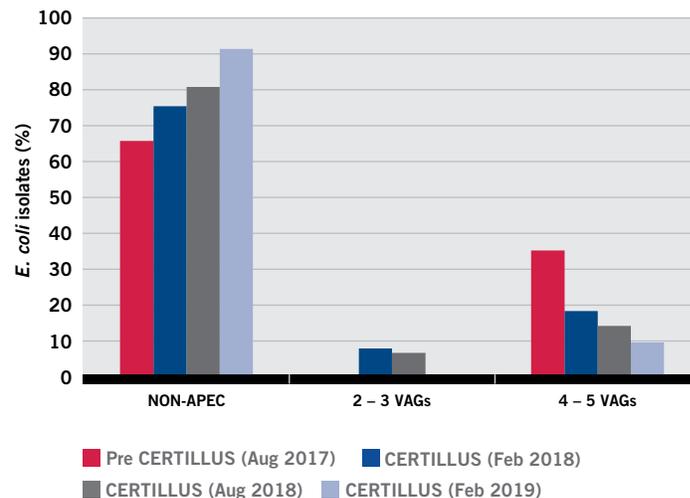
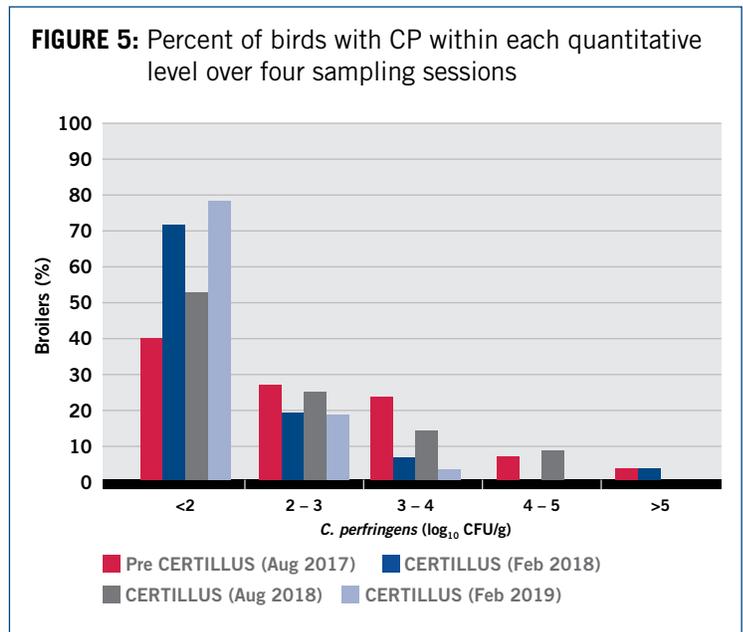
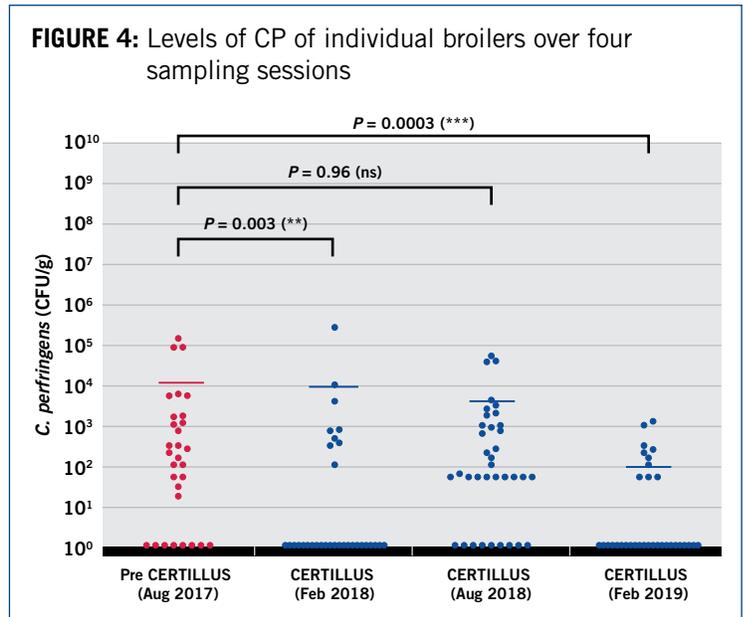


FIGURE 3: Virulence associated genes (VAGs) detected in APEC isolates collected over four sampling sessions



- At most samplings, CP levels decreased while fed CERTILLUS™ (Fig. 4), and fewer birds had elevated levels of CP (Fig. 5).



CONCLUSION

Feeding CERTILLUS in commercial broiler diets throughout the production cycle helped reduce APEC and CP levels in broiler GITs over the course of the 1.5 year study.



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1 Anderson S, Delago J, Vang E, Wujek R. ARM & HAMMER Internal Review. 2019. Data on file.

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