Research Notes

Arm & Hammer Animal and Food Production

CELMANAX reduced cecal *Salmonella* reading load compared to turkey hens fed a control diet and improved performance compared to turkeys fed a competitive product to CELMANAX.

CELMANAX™ is a multicomponent, all-natural feed supplement containing Refined Functional Carbohydrates™ (RFC™) that has Generally Recognized as Safe (GRAS) status as a feed ingredient.

STUDY OVERVIEW

- This study[1,2] was designed to determine the effect of CELMANAX on *Salmonella* reading (*S.* reading) challenge and performance of turkeys.
- Poults were allotted in a randomized block design with 22 poults/pen and 8 pens/treatment.
- Treatments:
  - Control
  - Competitor product at 1.25 lb./ton
  - CELMANAX at 1 lb./ton
- Birds were challenged on day 7 with two field strains of *S.* reading, $1.0x10^6$ CFU/bird.
- Performance and *S.* reading load in the ceca (6 birds/pen) was measured on day 84 (study ran for 84 days).
- Data were analyzed statistically, with significance noted at $P<0.05$.

RESULTS

- The percentage of hens testing negative for *S.* reading was higher for birds fed CELMANAX or the competitor product compared to the control fed hens ($P<0.05$) (Table 1).
- Birds fed CELMANAX or the competitor product had average *S.* reading loads that were 1.77 and 1.99 logs less than the control fed hens ($P<0.001$) (Table 2).
- There was no difference between birds fed CELMANAX or the competitor product for the average *S.* reading (Table 2).

TABLE 1. PERCENTAGE OF HENS WITH *S.* READING BELOW LIMIT OF DETECTION

TREATMENT	ESTIMATED PERCENT BELOW DETECTION (%)	95% CONFIDENCE INTERVAL (%)	
Control	31.7[b]	19.3	47.5
Competitor product	81.7[a]	67.8	90.4
CELMANAX	75.0[a]	59.9	85.8

a,b Different superscripts within a column indicate significant differences between treatments ($P\leq0.05$)

TABLE 2. MEAN *S.* READING LOG DIFFERENCE BETWEEN TREATMENTS

COMPARISON	ESTIMATED MEAN LOG DIFFERENCES	STD. ERROR	ADJUSTED *P*-VALUE
Competitor vs.Control	-1.99	0.43	<.001
CELMANAX vs. Control	-1.77	0.42	<.001
CELMANAX vs. Competitor	0.23	0.46	>0.999

- No statistically significant differences were noted for ending BW or feed intake between treatments (Table 3).
- Feed conversion ratio (FCR) was similar between turkeys fed control or CELMANAX™ and better than birds fed the competitive product (Table 3).

TABLE 3. EFFECT OF TREATMENTS ON PERFORMANCE

TREATMENT	AVG. BIRD WEIGHT DAY 0 (KG)	AVG. BIRD WEIGHT DAY 84 (KG)	TOTAL FEED INTAKE (KG)	FCR (MORTALITY AND BW ADJUSTED)
Control	0.06	8.38	17.93	2.14[b]
Competitor	0.06	8.25	18.67	2.27[a]
CELMANAX	0.05	8.28	17.51	2.11[b]

a,b Different superscripts within a column indicate significant differences ($P \leq 0.05$)

CONCLUSIONS

- Both CELMANAX and the competitor product reduced *S.* reading load by almost two logs in the ceca of challenged birds compared to control challenged birds.
- Performance was similar between control or CELMANAX fed birds and better than birds fed the competitive product.
- CELMANAX supplementation in turkey diets could help reduce *S.* reading infection while maintaining performance.

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1 Data on file
2 There were six treatments for the study. Only treatments one, two and three were used to generate this research study.