Research Notes P-82

Arm & Hammer Animal Nutrition

CEL-MAX study shows, improved feed conversion in turkey poults exposed to production stressors

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

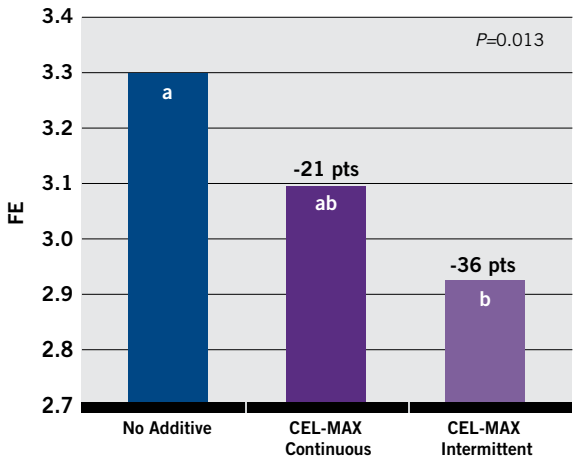
STUDY OVERVIEW

- The study objective was to determine the effects of CEL-MAX on turkey poult performance when placed in stressful production environments.
- 204-day-old male turkey poults were distributed in 4 completely randomized replicate pens/treatments: with 17 birds/pen. Treatments were as follows:
  - Control (no supplementation)
  - CEL-MAX SCP (100 g/MT) fed continuously
  - CEL-MAX SCP (200 g/MT) fed only during first week of placement and for a week encompassing each period of transport stress.
- All poults were transported at weeks 6, 12 and 16 to mimic industry practice.
- During weeks of transport, on alternate days, birds were exposed to an environmental challenge of *E. coli* to emulate field conditions.
- Body weight, feed intake and mortality were recorded periodically throughout the study.

RESULTS

- Continuous and intermittent feeding of CEL-MAX improved feed efficiency (FE) by 21 and 36 points, respectively; the intermittent feeding significantly improved FE (P=0.01) as shown in Figure 1.
- Continuous CEL-MAX supplementation numerically decreased the incidence of *Salmonella* (P=0.17) and *Campylobacter* (P=0.06) isolation in stressed turkeys from 33% to 8% (Figure 2), but was not observed in the non-stressed controls.
- Continuous CEL-MAX supplementation improved European Production Efficiency Factor (EPEF) of transported birds by 9.8% and intermittent feeding by 11.7% (P>0.05).
- Both CEL-MAX treatments decreased mortality from 29% to 11% at week 13 (P=0.04). The mortality of the control birds was 15% versus 11% in the treatment groups across the complete study (P>0.05) as shown in Figure 3.

FIGURE 1: Effect of treatments on Feed Efficiency



[a,b] Superscripts differing indicate significant difference (P<0.05)

CONCLUSION

- CEL-MAX™ supplementation to turkey diets can help mitigate some of the stress birds are exposed to in normal production environments, which may help improve feed conversion efficiency.
- Intermittent CEL-MAX supplementation at higher feeding rates during periods of stress may provide better results than continuous supplementation at lower feeding rates.

FIGURE 2: Effect of treatments on bacterial colonization at 16 weeks of age

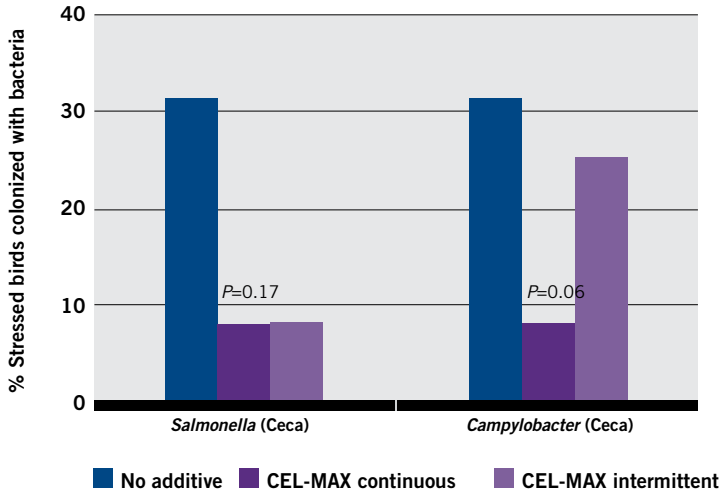
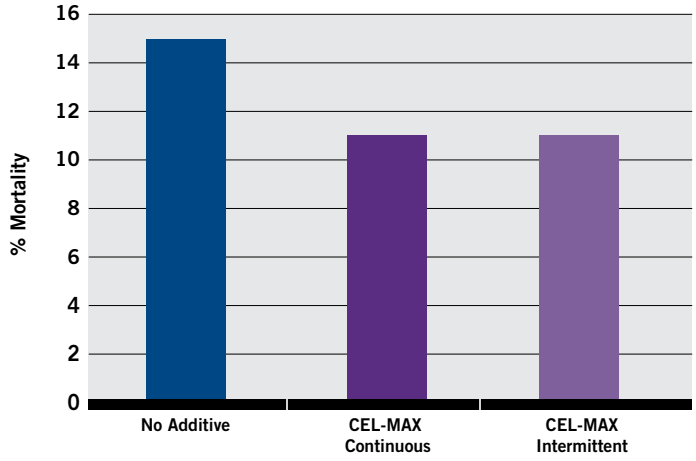


FIGURE 3: Effect of treatments on mortality at the end of the trial



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Adapted from the data of the study by Huff, et al. *Poultry Science* 2013;92:655-662.