Defend against coccidiosis in poultry management systems.

CELMANAX™

Research-proven CELMANAX™ is a multi-component, all-natural feed supplement containing Refined Functional Carbohydrates™ (RFC™) that has GRAS status as a feed ingredient for coccidiosis management.

The RFCs contained in CELMANAX act in synergy against several gastrointestinal challenges to consistently help improve broiler performance. *In vitro* studies show that CELMANAX reduced the attachment of *Cryptosporidium parvum* (same class of protozoa as *Eimeria*) to epithelial cells (Fig. 1). In a similar manner, CELMANAX reduces the ability of *Eimeria* sporozoites to attach to intestinal epithelial cells so that more oocysts will be shed and recycled to promote immune development.

FIG. 1. EFFECT OF CELMANAX ON *C. PARVUM* ATTACHMENT TO EPITHELIAL CELLS[1]

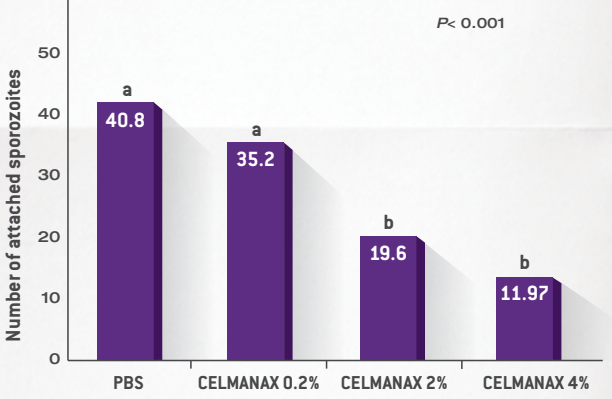


FIG. 2. EFFECT OF TREATMENTS ON *E. TENELLA* LESION SCORE AT 21 DAYS OF AGE[2]

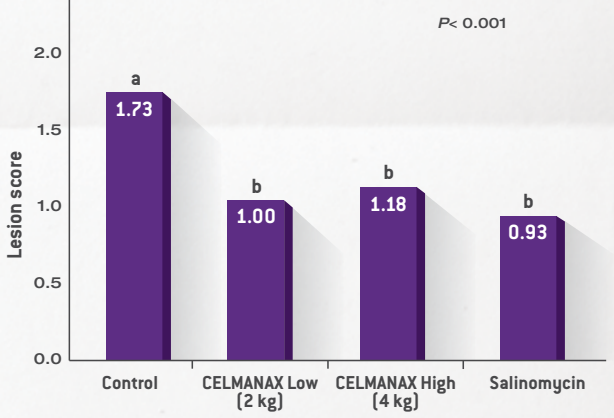
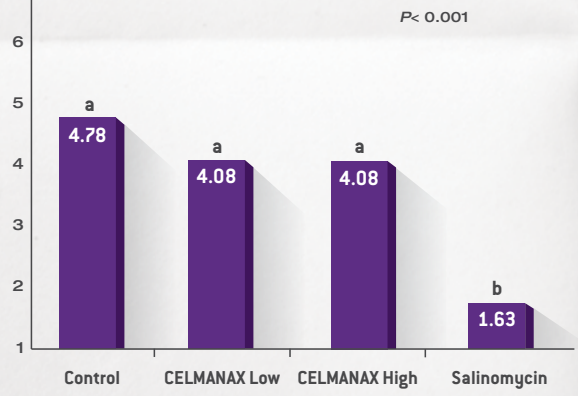


FIG. 3. EFFECT OF TREATMENTS ON *E. MAXIMA* AND *E. ACERVULINA* LESION SCORE AT 21 DAYS OF AGE[2]



CELMANAX™ supplementation was compared to coccidiostat supplementation from 1 – 21 days of age in broilers given a moderate coccidiosis challenge with *E. maxima, E. acervulina*, and *E. tenella* at 15 days of age. CELMANAX was very effective in reducing *E. tenella* lesion score (Fig. 2) and moderately effective against *E. maxima* and *E. acervulina* (Fig. 3) in this short experiment, but just a decrease in attachment did not seem to be adequate to control coccidiosis.

But the modulation of attachment can lead to more oocysts recycling and faster immune development against coccidiosis. Since the birds were challenged on day 15 and the trial was terminated on day 21, it was assumed that adequate time was not allowed for the *E. maxima* and *E. acervulina* oocysts to recycle and stimulate immunity in this experiment (Fig. 2 and 3). This hypothesis was tested in the next experiment. Under standard commercial coccidiosis control programs using vaccination or coccidiostat supplementation, including CELMANAX SCP (Soluble Concentrated Powder) in broiler diets improved BW and FCR at 42 days of age (Fig. 4 and 5). This effect of CELMANAX in coccidiosis management allows coccidiostat withdrawal after 16 days of age from the broiler diets without sacrificing BW gain or FCR (Fig. 6) when CELMANAX was supplemented in all diet phases.

The synergy of different RFC™s allows CELMANAX to consistently help improve performance in both normal and challenged conditions. Typically, a one point reduction in FCR translates to feed cost savings of $6296 per million broilers based on 2016 feed costs.

CELMANAX is available in three formulations, providing flexibility to apply in feed or watering systems.

FIG. 5. EFFECT OF CELMANAX SCP ON 42 DAYS FCR[3]

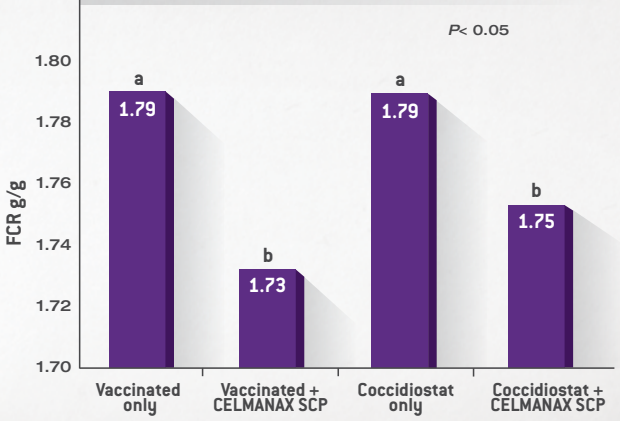


FIG. 4. EFFECT OF CELMANAX SCP ON BW OF BROILERS AT 42 DAYS OF AGE[3]

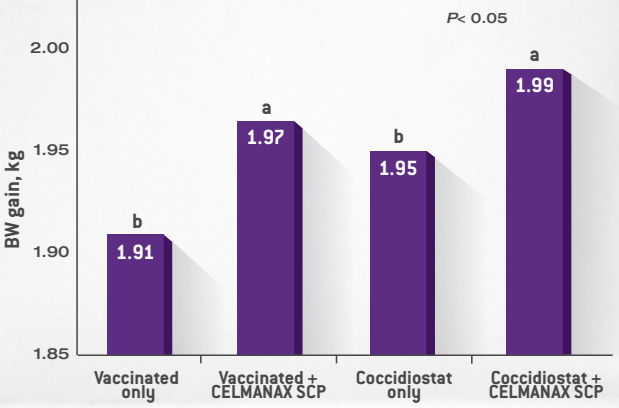
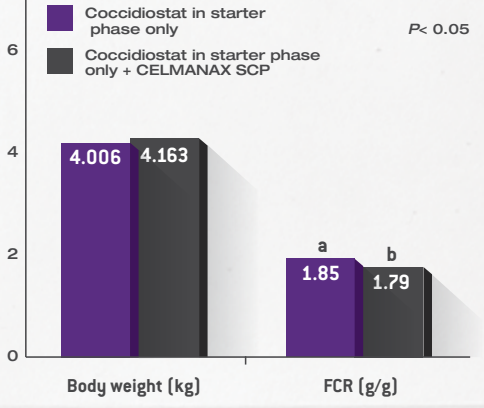


FIG. 6. EFFECT OF CELMANAX SCP IN BROILER DIETS AT 49 DAYS[4]



Reference:

1. Jalukar S, Nocek J. Evaluation of enzymatically hydrolyzed yeast *in vitro* and *in vivo* for control of *Cryptosporidium parvum* infections in dairy calves. 2009; *J Anim Sci* Vol. 87, E-Suppl. 2/*J Dairy Sci* Vol. 92, E-Suppl. 1. RB I-38.
2. Jalukar S, Oppy J, Davis S. Effect of enzymatically hydrolyzed yeast supplementation on performance and in protecting broilers against a mild coccidiosis challenge. Joint ASAS/ADSA meeting, 2008; RB P-42.
3. Mathis G, Lumpkins B, Jalukar S. Effect of CELMANAX SCP feed supplementation on performance of broilers either fed an anticoccidial drug or vaccinated. Presented at IPSF in Atlanta, GA, USA, 2011; RB P-76.
4. Brake J, et al. Coccidiostat withdrawal from broiler diets containing Refined Functional Carbohydrates (RFC) from enzymatically hydrolyzed yeast. Abstract M3, presented at 2015 IPSF, Atlanta, GA, USA. RB P-88.

To learn more about CELMANAX contact your nutritionist, veterinarian or Arm & Hammer Animal Nutrition representative or visit AHanimalnutrition.com.

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