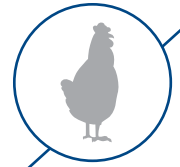


Research Notes P-92

ARM & HAMMER



CELMANAX supplementation in broiler breeder and broiler diets reduced prevalence of *Salmonella*

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

Two independent studies^{1,2} were done to evaluate the effect of CELMANAX supplementation in broiler breeder and broiler diets on *Salmonella* prevalence.

Study 1¹

- A total of 1,040 one-day-old broiler breeders were reared in 16 pens (60 – 65 females per pen and 8 – 18 males per pen; 8 pens per treatment)
- Broiler breeders were fed 0 or 50 g/MT of CELMANAX SCP
- Eggs from 51-week-old breeder hens were collected and hatched, and male progeny broiler chicks were fed diets supplemented with 0 or 50 g/MT of CELMANAX SCP
- All broilers (n=192) were tested for cecal *Salmonella* spp. at 34 days of age
- Ceca were collected from breeder hens (n=28 – 30) from each treatment group at 23 and 64 weeks of age and tested for *Salmonella* prevalence
- Breeder performance was measured

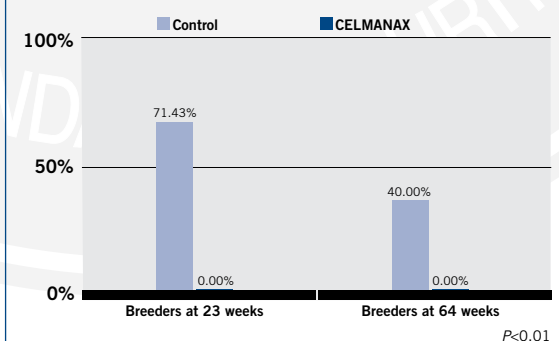
Study 2²

- One-day-old Ross Broiler chicks sorted by sex were allotted to 24 replicate pens of 12 broilers each per diet per sex and fed either 0 or 50 g/MT of CELMANAX SCP
- Broilers were fed a standard starter, grower and finisher diet
- Broiler pens were tested for *Salmonella* prevalence in the litter
- *Salmonella* prevalence was also tested in broiler ceca
- Broiler performance was measured

RESULTS

- In study 1, control broiler breeder hens had 71.43% and 40.00% prevalence of *Salmonella* in the ceca, while hens fed CELMANAX had zero prevalence of *Salmonella* ($P<0.01$) (Fig. 1).

FIGURE 1: Treatment effects on % prevalence of *Salmonella* in breeder hen ceca in Study 1



- In study 1, broiler progeny from hens fed the control diet and receiving control broiler diets had 12.5% prevalence of *Salmonella* in the ceca whereas broilers from CELMANAX™-fed hens and receiving 0 or 50 g/MT of CELMANAX in the broiler diets had zero prevalence of *Salmonella* at 34-day sampling (Fig. 2).
- In study 2, *Salmonella* spp. was isolated from litter from 7 of 48 (14.58%) control-fed broiler pens, but none (0%) were isolated from CELMANAX-fed pens ($P \leq 0.05$) (Fig. 3).
- Broiler cecal sampling for *Salmonella* at 44 days of age and 55 days of age confirmed 45.83% and 29.17% prevalence respectively in control-fed broilers, but none from pens fed CELMANAX (Fig. 4).
- CELMANAX-fed female broilers had a tendency for improved body weight and feed-conversion ratio (data not presented).

CONCLUSIONS

- CELMANAX supplementation in broiler breeder and broiler diets significantly reduced prevalence of *Salmonella* in the litter and ceca, thus supporting its benefit in a multifactorial *Salmonella* mitigation strategy in poultry production.

FIGURE 2: Breeder and broiler treatment effects on % prevalence of *Salmonella* in broiler ceca in Study 1

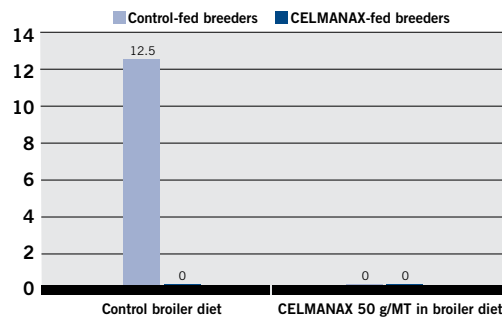


FIGURE 3: Broiler treatment effects on % incidence of *Salmonella* presence in litter in Study 2

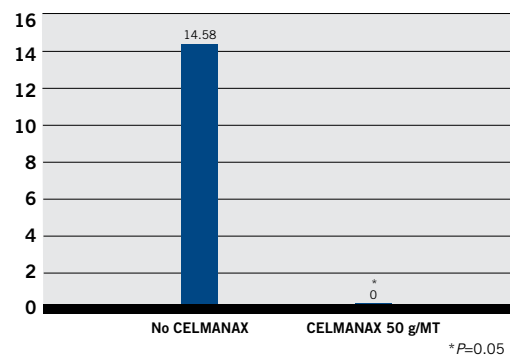
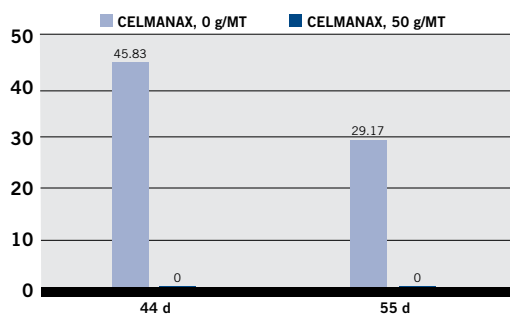


FIGURE 4: Treatment effects on % prevalence of *Salmonella* in ceca of broilers in Study 2



1 Walker et al. *Poult Sci* 2017;96(8):2684-2690.
 2 Walker et al. *Poultry Science* 2018;97:1412-1419.

