Improved performance of layers and reduced salmonella prevalence

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In a survey of food disease outbreaks over nearly a decade, poultry accounted for a higher percentage of salmonella outbreaks than any other food commodity, with approximately 40% of tracked outbreaks linked to live poultry, shell eggs or processed poultry products. Vertical transmission of bacterial pathogens like salmonella remains a critical issue throughout all stage of production. To explore the potential for nutritional solutions to losses due to salmonella, a recent trial studied the effects of feeding CELMANAX™ on layer performance and environmental salmonella. Results were presented at the 2019 International Poultry Scientific Forum in Atlanta, Georgia, USA. CELMANAX contains Refined Functional Carbohydrates™ (RFCs™), which help birds cope with environmental challenges by preparing the immune system ahead of a challenge. RFCs act in synergy against gastrointestinal tract (GIT) challenges to consistently improve performance and promote food safety. In vitro studies show that CELMANAX can agglutinate and prevent adherence of several species of salmonella to gut epithelium, preventing bacteria from colonising in the GIT.

TRIAL DESIGN

In the layer study, two treatments were fed from day 1 (pullets) until 45 weeks of age:

- Control diet.
- CELMANAX fed at a rate of 0.5kg/MT.

The study involved a total of four houses – two control houses and two with CELMANAX treatments. Each house averaged 60,000-90,000 hens. Researchers monitored mortality, egg production and environmental salmonella prevalence. Results from all four houses were combined and means calculated for each parameter.

CELMANAX RESULTS

Production parameters showed that CELMANAX supplementation reduced percent mortality, and improved eggs/hen housed (HH) and case weight compared with control without CELMANAX (see Table 1). Researchers tested salmonella prevalence following Food and Drug Association (FDA) guidance 2011, which requires one environmental swab test between 14 and 16 weeks during pullet phase and another test between 40 and 45 weeks of age in lay houses. CELMANAX reduced the prevalence of environmental salmonella, both at the end of pullet phase (16 weeks) and in mid-lay (45 weeks) (see Table 2).

LESS SALMONELLA, MORE REVENUE

CELMANAX supplementation in pullet and layer diets can lead to a reduction in salmonella prevalence in layer houses, while improving egg performance. Based on the results of the trial, CELMANAX provided a variety of economic advantages driven by the increase in eggs per hen housed. This led to improved revenue and profits per bird, and an additional US$0.60 benefit per hen compared to the control group.

Table 1. Production summary for flocks at 45 weeks of age.

	Mortality (%)	Eggs/HH	Case weight (kg)
Control	2.86	159.36	21.47
CELMANAX	1.82	168.85	22.20

Table 2. Salmonella prevalence (%).

Treatment	Pullet 16 weeks	Lay 45 weeks
Control	19.9	33.75
CELMANAX	15.7	20.0

References for all research cited available on request

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