

Delivering improved egg production and feed efficiency.



Layer research trial:

CEL-MAX™ is a unique feed additive containing Refined Functional Carbohydrates™ (RFC™) derived from yeast, designed to improve overall health, growth and feed conversion in poultry. Multiple studies in broilers show these benefits to be consistent. It was of interest to determine if CEL-MAX can offer the same benefits for layers and how well it compares to some of the other common feed additives.

Objective:

Effect of CEL-MAX supplementation in layer diets on performance was compared to a control diet and diets supplemented with antibiotic, probiotic and herbal extract products.

Materials and methods:

This study was done in Guatemala. Two hundred Lohman White Classic layers, 28 weeks of age, were allotted in a completely randomized block design to five treatments with 4 birds/cage, 8 reps/treatment for 10 weeks. There were 2 nipple drinkers per cage, with 480 cm²/bird and 14.5 hours of total light (3.5 hours of artificial light). Mash feed was made at a commercial feed mill. A two week adaptation period was followed by 8 weeks of data collection.

The treatments were:

- T1 negative control
- T2 positive control (BMD 11% @ 330 g/MT)
- T3 probiotic (*Bacillus subtilis* QST713 10⁶ cfu/g, 100g/MT)
- T4 prebiotic – CEL-MAX 500 g/MT
- T5 herbal extract product, X-Tract, 100g/MT

Parameters measured were, Feed Intake (FI), egg production, and egg parameters. Feed efficiency was calculated using the following formula. Feed Efficiency= grams feed/grams egg mass (egg mass= egg weight * % production). Two birds per treatment were sacrificed at the end of the trial and ceca were analyzed for *Salmonella* prevalence. Data was analyzed

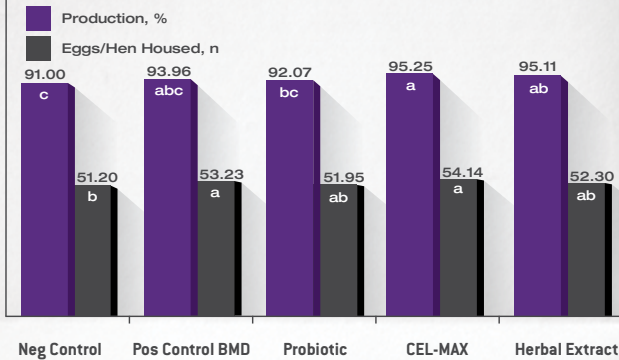
statistically by Tukeys' mean separation test. Statements of statistical significance were based upon $P < 0.05$ unless otherwise stated.

Results:

All treatments improved egg production compared to negative control, but CEL-MAX gave the largest numerical improvement in % production and number of eggs/hen housed. Feed efficiency was improved in hens supplemented with CEL-MAX and X-Tract compared to all other treatments ($P < 0.05$). Egg weight was not affected by treatments. Egg yolk color was significantly higher in hens supplemented with BMD, CEL-MAX and X-Tract compared to control and probiotic. Egg shell thickness was highest in hens receiving X-Tract and lowest in those receiving the probiotic, with all other treatments being intermediate. *Salmonella* sp. was isolated from ceca of hens receiving negative control and X-Tract treatments, but not from hens receiving BMD, probiotic and CEL-MAX.

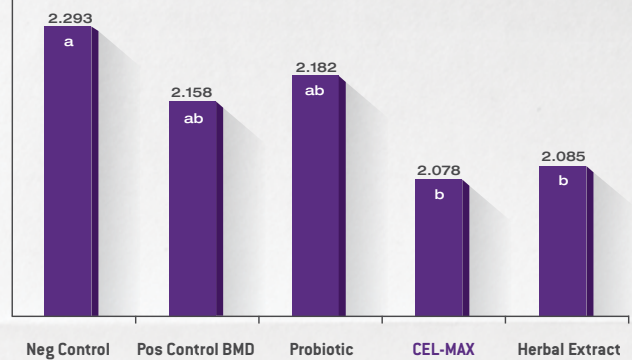


EGG PRODUCTION



a,b,c indicates significant difference ($P < 0.05$)

FEED EFFICIENCY, g/g



a,b indicates significant difference ($P < 0.05$)

Effect of treatments on egg parameters

Variable	Neg Control	Pos Control BMD	Probiotic	CEL-MAX	Herbal extract
Birds, n	40	40	40	40	39
Egg Weight, g	59.01	59.15	58.68	60.12	60.61
Yolk Color, RCF	10.43 ^b	11.41 ^a	10.75 ^b	11.38 ^a	11.45 ^a
Haugh Units	92.18 ^b	96.36 ^a	95.48 ^{ab}	97.18 ^a	96.87 ^a
Shell Thickness, μmm	364.79 ^{ab}	365.66 ^{ab}	357.53 ^b	367.07 ^{ab}	374.78 ^a

a,b indicates significant difference ($P < 0.05$)

Conclusion:

CEL-MAX™ fed to layers resulted in the largest numerical improvement in layer performance while improving some egg parameters.

To learn more about CEL-MAX contact your nutritionist, veterinarian or Arm & Hammer Animal Nutrition representative or visit AHAnimalNutrition.com.

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PRODUCTIVITY ALWAYS.