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ABSTRACTS
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SYMPOSIA AND ORAL SESSIONS

Monday, January 25, 2016

Tuesday, January 26, 2016

%: 98.4/99.0/99.0/99.5. Flock uniformity in %: 92.5/93.5/92.9/93.1. Tibia ash in %: 52.2#/52.7##/52.4##/52.5##. At day 35 was weight gain in g: 3'189/3'292/3'270/3'280. Feed conversion ratio: 1.540*/1.515**/1.522**/1.516**. Livability in %: 97.4/98.4/98.4/99.0. Flock uniformity in %: 92.5/93.5/92.9/93.1. Tibia ash in %: 52.6#/53.4##/53.2##/53.0##.

Conclusion:
Addition of the herbal, vitamin D activity containing product supplemented on top of a sufficient dose of vitamin D3 was able to reduce feed conversion ratio significantly (p>0.05). Tibial bone ash was improved near significant at day 14 and day 35 (p>0.1). Livability was non-significantly reduced in this research station trial at a generally very low mortality.

Key Words: Broiler chicken, 1,25-dihydroxycholcalciferol-glycosides, Feed conversion ratio, Tibia ash %

P336 Statistical design for optimization of experiments with broilers
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The poultry industry has sought to optimize the animal production. For this reason, the mathematical modeling is an essential tool to achieve greater control and production planning appropriate to the different conditions of feeding, market and economic interests. The aim of this work was to evaluate the effect of electrolyte balance to optimize the performance of broilers supplemented with phytase and to apply the central composite design (CCD) as an alternative to the full factorial with the same quality of the estimates of the studied responses. Therefore, two experiments were conducted simultaneously, with a total of 530 Cobb 500 male chicks. The treatments consisted of diets containing electrolyte balance of 250 mEq/kg and combinations of different levels of electrolyte ratio (ER) and phytase. Experiment I was conducted with 370 birds distributed in a completely randomized design in a factorial arrangement 3x3 (0, 1000 and 2000 phytase units (FTU)/kg and 2.5; 3.0 and 3.5 for RE) and the experiment II used 160 birds in a factorial arrangement 2x2 (293 and 1707 FTU/kg and 2.65 and 3.35 for ER). The birds were housed in 53 boxes (4 replicates per treatment and 10 birds per plot with exception of the treatment in the central point, with 5 replicates). These two experiments enabled to compare four designs of treatments: full factorial, incomplete factorial, central composite and rotational central composite, to estimate a response surface. The performance data (weight gain, feed intake and feed conversion), the bio-economic index and the phosphorus concentration in the excreta of broilers at 42 days of age were measured. The variables phytase and ER within the range evaluated did not affect the performance of the birds nor the bio-economic index. The phosphorus content in excreta decreased linearly with the increase of phytase in the diet (P<0.05). The CCD showed similar results to the full factorial with the advantage of using a smaller number of birds in the experiment, with the reduction of 64.9% over the full factorial. The CCD can be suitable for experiments with low coefficients of variation values or, more precisely, when smaller than or equal to 10%.

Key Words: Electrolyte balance, mathematical modeling, performance, phytase

P337 Effect of protease supplementation on performance, egg quality and intestinal morphometry of layers
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Two trials were conducted to determine the effects of a protease enzyme (Cibenza DP100, Novus International Inc.) on parameters of commercial relevance for layers in Peak (from 28 to 39 wks, Trial 1) and Layer 2 (from 75 to 86 wks, Trial 2) phases. In each trial, 234 Hy-Line W36 layers with similar weight and production were distributed in a completely randomized arrangement to 3 treatments with 6 replicates of 13 birds each. Positive control (PC) diets were Corn/SBM/MBM/Corn gluten meal-based with phytase and formulated to meet minimum requirements of layer in each Trial. Negative control (NC) diets were reduced in CP, AAs and 20kcal/kg ME according to provider recommendations. Treatment 3 (Pro) consisted of NC plus protease (150 units/g of feed). Performance was determined weekly while internal and external egg quality was measured every 4 wks. At the end of the trial 1 layer/pen was sacrificed to evaluate gut morphometry and organ weights including liver, proventriculus, gizzard, pancreas, duodenum, jejunum, ileum and large intestine. Data were analyzed by ANOVA and difference among means established by Tukey Test (P=0.05). In Trial 1, Pro significantly increased egg production (from 76.9 to 82.5%), FI, egg mass over NC, reaching or improving PC results of layers from 28 to 39 wks. There was a numerical improvement with Pro on egg weight, FCR and villus:crypt ratio of duodenum, jejunum and ileum. Treatments did not affect egg composition, Haugh units, specific gravity and organs weight. For Trial 2, Pro increased egg production in 11.6%, egg weight, egg mass and FCR (from 2.43 to 2.00g/g) over NC (P<0.05). There were no differences between PC and Pro for these parameters. Regarding egg composition, only egg shell (%) presented differences (P<0.05) with a reduction for NC compared to PC and Pro treatments. In accordance to Trial 1, there were no effect on Haugh units, specific gravity and organs weight. Regarding gut morphometry, villus height was significantly higher for PC and Pro and villus:crypt ratio showed numerical improvement. In conclusion, for layer fed typical Brazilian commercial diets, protease can maintain the performance and egg quality while reducing CP, AAs and ME and consequently feed costs.

Key Words: protease, laying hens, performance, egg quality

P338 Protected combination of sodium butyrate and essential oils in pullets feed, a field evaluation
Monica Puyalto*[1], Miguel Colilla[1], Teresa Flores[2], Juan Mallo[1] *[1]NOREL S.A.; [2]St. John Biomedics*

The aim of the study was to evaluate the effects that NATESSE (sodium butyrate and essential oils protected with vegetable fat) has on the production parameters of pullets in a field trial.

One thousand one-day-old pullets were distributed in two treatments: a control treatment (C), a standard diet without additive, and an experimental treatment (N), basal diet with protected sodium butyrate and essential oils (NATESSE), added on top at 1kg/t in starter feed (1-5 weeks) and at 0.5 Kg/t in grower feed (6-16 weeks). Live body weight, feed intake, flock uniformity, score of necrotic enteritis, health condition and mortality were evaluated. The average body weight was 43 g higher at the end of the trial for N group (1.175 Kg vs 1.132 Kg). The feed intake was equal for both treatments (4.2 Kg). Flock uniformity for animals with butyrate and essential oils in protected form was 98% vs 78% in control group. Regarding health condition animals in treatment C showed signs of necrotic enteritis, emaciation and respiratory diseases but these signs were not shown in N group. Feathers were white in N group and dirty in C group. There were differences in mortality as well, the C group had 4.5% mortality at the end of the trial, whilst N group had less mortality, 3.5%.

We can conclude that the use of sodium butyrate and essential oils in protected form on pullet feed allows higher growth, better FCR, flock uniformity and health status.

Key Words: sodium butyrate protected, essential oils

P339 Effect of Bacillus subtilis supplementation and dietary crude protein on growth performance and intestinal morphlogical changes of meat type chicken
Kamel Mahmoud*, Belal Obeidat, Mohammad Al-Sadi *Jordan University of Science & Technology*

A study was conducted to evaluate the effect of adding *Bacillus subtilis*-based probiotic to broiler diet with two levels of crude protein (CP). Growth performance, carcass and meat quality characteristics, digestive tract development and ileal digestibility of CP were investigated using a total of 720 day-old mixed sex Hubbard Classic chicks. The recom-