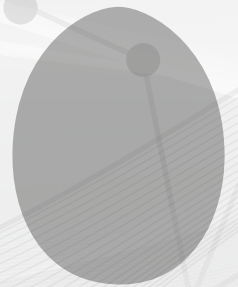
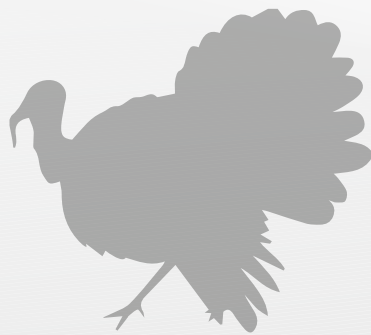
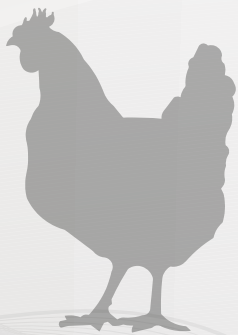


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ABSTRACTS
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Table of Contents

SYMPOSIA AND ORAL SESSIONS

Monday, January 25, 2016

Milton Y Dendy Keynote Address	1
Physiology.....	2
Processing & Products	5
Pathology	10
SCAD I.....	13
Metabolism & Nutrition I	17
Metabolism & Nutrition II	21
Environment Management I	24
Environment Management II	29
Metabolism & Nutrition III.....	32
Metabolism & Nutrition IV.....	37

Tuesday, January 26, 2016

Metabolism & Nutrition V	40
SCAD II	44
SCAD III.....	46
Metabolism & Nutrition VI.....	47
Environment & Management III.....	51
Metabolism & Nutrition VII	55

POSTER PRESENTATIONS	60
Author Index	106

Arg (304 vs. 251), Lys (432 vs. 348), Glu (873 vs. 730), Ser (460 vs. 387) losses in mg/kg DMI and lower endogenous Trp loss (59 vs. 74 mg/kg DMI). Seven AA (Ile, Leu, Met, Phe, Ala, Gly, and Tyr) showed a tendency ($P < 0.1$) for higher endogenous losses with low DEB. When estimated in g/kg of digesta/g of FI, low DEB resulted in higher ($P < 0.05$) endogenous Lys (0.970 vs. 0.829) and lower ($P < 0.05$) endogenous Trp (0.127 vs. 0.171) losses. All the indispensable AA showed increased ($P < 0.05$) endogenous losses (mg/kg DMI) when dextrose was the only source of energy in the diet except Trp (lower, $P < 0.05$), His (no difference), and Thr (tendency for increased loss with corn starch; $P = 0.058$). For the dispensable AA, only Ala (343 vs. 281 mg/kg DMI) and Asp (647 vs. 509 mg/kg DMI) showed increased ($P < 0.05$) ileal endogenous losses with dextrose. With the exception of Trp (no effect), dextrose as the only source of energy in the diets resulted in higher ($P < 0.05$) ileal EAA losses for all the AA, nitrogen (4.15 vs. 3.12) and total AA (18.7 vs. 14.2) in g/kg of digesta/g of FI. Results from this study showed that dextrose as the sole source of dietary energy had greater effect on ileal EAA losses in 21 d-old broilers fed NFD when compared with DEB level.

Key Words: Broiler, dietary electrolyte balance, endogenous amino acid loss, energy source

P325 Apparent metabolizable energy from microalgae *Spirulina maxima* for broiler chickens Fernando Tavernari¹, Lenilson Roza², Diego Surek¹, Marcio Da Silva¹ ¹EMBRAPA; ²UDESC

The use of microalgae for biodiesel production has now grown due to large amount of ether extract (EE) of this type of feedstock. The ending result from the EE extraction process is a defatted microalgae residues rich in proteins and carbohydrates that can be used for animal nutrition. However, the metabolizable energy (ME) of this residues was little explored. Therefore, a metabolism trial was performed using broiler chickens to determine the metabolizable energy corrected for nitrogen balance (AME) present in microalgae *Spirulina maxima*. A randomized block design with two treatments and 10 repetitions (metabolic cages) with 14 birds per repetition was used. The treatments were composed of two group of birds. One received reference diets (RD) and the second group received 80% of RD amended 20% microalgae. The analyzed microalgae had 88.8% DM, 51.5% CP, 0.99% EE, 1.1% CF, 4399 kcal/kg CE, 9.4% Ash, 0.34% Ca and 1.08% P. The experimental period was conducted within 14 and 22 days of birds age. Total collection method was used to estimate apparent metabolizable energy. The results indicate that the apparent metabolizable energy of microalgae is 2,865.9 kcal/kg (3,219.4 Kcal/Kg, on DM basis) and 2,492.9 kcal/kg (2,800.4 Kcal/Kg, on DM basis) when corrected for nitrogen.

Key Words: energy, broilers, microalgae, *Spirulina maxima*

P326 Broiler chicken ileal apparent digestibility of calcium and phosphorus from microalgae *Spirulina maxima* Fernando Tavernari¹, Diego Surek¹, Lenilson Roza², Marcio Da Silva¹, Luiz Albino³ ¹EMBRAPA; ²UDESC; ³UFV

Microalgae can be an alternative ingredient for broiler chickens diets that are solely based on corn and soybean meal. However, evaluation of digestibility of minerals such as calcium (Ca) and phosphorus (P) present in the microalgae is required for a precise formulation of the diet. Therefore, a metabolism trial using broiler chickens was performed to determine the ileal apparent digestibility coefficients (IADC) of Ca and P from the microalgae *Spirulina maxima*. A randomized block design with two treatments and 10 repetitions (metabolic cages) with 14 birds per repetition was used. The treatments were composed of a group of birds that received reference diet (RD) and another group received 80% of RD amended 20% microalgae. The analyzed microalgae had 88.8% DM, 51.5% CP, 0.99% EE, 1.1% CF, 4399 kcal/kg CE, 9.4% Ash, 0.34% Ca and 1.08% P. To determine the ileal apparent digestibility of Ca and P ratio 1% of indigestible indicator acid insoluble ash (CIA) was added into diets. The experiments took place within 14 and 22 days of birds age. On the last day of trial, the

birds were slaughtered by cervical dislocation to collect the ileal content. IADC of Ca and P were 84.1% and 94.78%, respectively. Thereby, microalgae Ca and P digestibility corresponded to 0.29 and 1.02%, respectively on as fed basis.

Key Words: broilers, microalgae, digestibility, calcium, phosphorus

P327 The effect of Aviator supplementation compared to other feed additives on layer Performance Gustavo Castañeda¹, Sangita Jalukar², Hans Mann³ ¹Universidad De San Carlos De Guatemala; ²Arm and Hammer Animal Nutrition; ³Desarrollo Y Nutricion Animal

AVIATOR™ is a unique feed additive containing Refined Functional Carbohydrates™ (RFC®) derived from yeast, designed to improve overall health, growth and feed conversion in poultry. This study evaluated the benefit of supplementing AVIATOR in layer diets compared to some of the other common feed additives. 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. 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 (*Lactobacillus* sp.), T4 AVIATOR Dry 500 g/MT, T5 herbal extract X-Tract. Parameters measured were, feed intake, egg production, and egg parameters. Feed efficiency (FE) was calculated using the formula, FE = grams feed/grams egg mass (egg mass = egg weight * % production). Data was analyzed statistically by Tukeys' mean separation test. Statements of statistical significance were based upon $P < 0.05$ unless otherwise stated. All treatments improved egg production compared to control but AVIATOR gave the largest numerical improvement in % production and number of eggs/hen housed. FE was improved in hens supplemented with AVIATOR 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, AVIATOR, 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. In conclusion, AVIATOR fed to layers resulted in the largest improvement in layer performance while improving egg parameters.

Key Words: layers, yeast, refined functional carbohydrates, egg production

P328 Performance of broiler chickens fed antibiotic free diets supplemented with Ration Plus® for Poultry David Hall¹, Elizabeth Wozniak¹, Danny Hooge², Michael Sims³ ¹Cytozyme Laboratories, Inc.; ²Hooge Consulting Service, LLC; ³Virginia Diversified Research Corp.

A 31-day feeding trial (7-38 days; July-August) was conducted with 2,160 straight-run Cobb 500 broiler chicks on new wood shavings litter to evaluate effects of corn-soy based diets with corn DDGS, meat and bone meal, and soy oil, with or without Ration Plus® for Poultry (RP; AAFCO 36.11 Dried *Lactobacillus acidophilus* Fermentation Product), a naturally-derived feed additive, on live performance. Chicks were given Coccivac-B and regular vaccinations at hatch. Each pen was 1.52 x 5.18 m and contained 120 chicks initially. Extra litter was added during the trial. All of the birds received an antibiotic-free (ABF) control diet for the first 7 days, and ABF experimental diets (control or RP at 0.10%) from 7-38 days of age. A randomized complete block design was used with 2 treatments, 9 replicate pens per treatment, and 2 pens in each block. Tukey's test was used to separate means ($P \leq 0.05$; Statistix 8). Results were reported as 38-day body weight, 0-38 day feed conversion ratio, and 0-38 day mortality %. Broilers fed diets supplemented with RP had significantly greater final body weight (0.110 lb or 49.9 g; 3.155% relative to control; $P = 0.019$) and lower feed conversion ratio (-0.077; -4.529% relative to control; $P = 0.047$) compared to birds fed control diets. Mortality % was not significantly affected by dietary treatments (3.0567% for control vs. 3.7956% for R P; $P = 0.516$) and were typical of levels in the commercial broiler industry. Data from this trial suggest that the addition of RP (0.10%) effectively