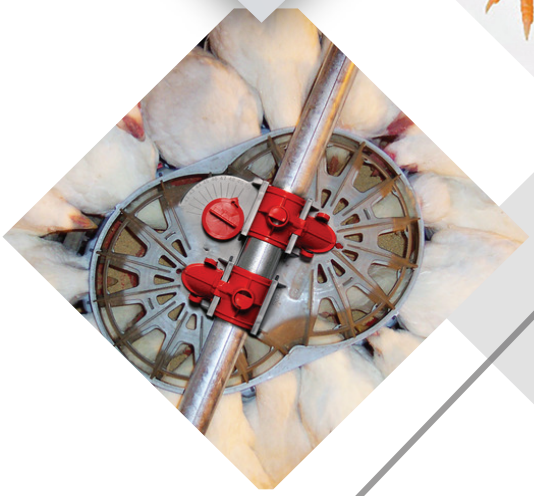
2018

INTERNATIONAL POULTRY SCIENTIFIC FORUM

JANUARY 29 – 30



ABSTRACTS

2018 International Poultry Scientific Forum

Georgia World Congress Center, Atlanta, Georgia

January 29-30, 2018

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meat yield of broilers. Dietary treatments included: T1, control (CON), T2, 5 mg/bird/day of PA (LowPA), T3, 10 mg/bird/day of PA (MidPA), and T4, 15 mg/bird/day of PA (HighPA). All birds were weighed on d 14, 28, 42 and 49 to obtain average pen weights and feed conversion ratios. On day 49, eight birds per pen were processed and carcass and breast yield were determined. Breast filets were evaluated for the presence and severity of woody breast and white striping. Differences ($P < 0.05$) in live bird weights between the control birds (1.659kg) and all PA treatments (pooled mean: 1.731kg) began at 28 days; however, only the LowPA carried that effect ($P = 0.05$) through the conclusion of the trial (3.553 vs 3.818 kg). Overall, LowPA (1.649) and MidPA (1.694) had lower ($P < 0.05$) FCR than the CON treatment (1.741). Increased growth observed in live bird weights in the LowPA translated to increased ($P < 0.05$) overall carcass weights (2.783 vs 2.991 kg) and specifically breast filet weights (0.693 vs 0.769 kg). Yields did not differ ($P > 0.05$) but with the increased weight feeding LowPA resulted in more total breast meat. None of the doses of PA affected ($P > 0.05$) woody breast (pooled mean: 1.23) or white stripping scores (pooled mean: 1.06). In conclusion utilizing dietary PA increased live bird weights, improved FCR, and increased breast filet weight. This improvement in BW and breast weight was obtained without increasing woody breast, or white stripping. These data indicate that dietary PA may increase production efficiency in broilers.

Key Words: broiler, phosphatidicacid, growth, Breastyield

P279 Supplementation of broiler diets with All-G-Rich™: Effects on productivity, blood parameters and meat DHA content Colm Moran*[1], Jason Keegan[2], Doug Currie[3], Anne Knox[3] *[1]Alltech SARL; [2]Alltech Inc; [3]Roslin Nutrition Ltd*

The nutritional value of chicken meat and eggs can be improved through dietary supplementation with omega-3 fatty acid (n-3 FA) rich microalgae. *Aurantiochytrium limacinum* (CCAP 4087/2, All-G-Rich™, Alltech Inc) is a docosahexaenoic acid (DHA) rich microalgae that can be produced heterotrophically in a sustainable manner. The purpose of this experiment was to determine the effect of dietary supplementation of broilers with *A. limacinum* over a 21 day period, on productivity, blood parameters and meat DHA content. Healthy day-old male Ross 308 chicks (n=2,240) were randomly allocated to one of four treatment groups. From day 0-21 all chicks were provided with a starter diet containing no algae. The experimental diets were provided *ad libitum* from day 21. Algae was added as a percentage of the diet to provide a no algae control (T1=0%), and algae included at a level of 0.5 (T2=0.25%), 1 (T3=0.5%) and 5 (T4=1%) times the recommended intake. The study was conducted using 64 pens, providing 16 replicates for each treatment with 35 birds per pen. On days 0, 21 and 42, the birds were weighed and the amount of feed provided/removed was recorded per pen. On day 42, blood was taken from 1 bird per pen for haematological and biochemical analysis. One bird from each pen was sacrificed and breast and thigh samples were taken for DHA content analysis. No differences in average weight gain, average feed intake or feed conversion ratio were observed between the control and supplemented groups during any period of the trial. Overall, mortality was low (1.74%), and no differences between the groups in terms of mortality or blood haematology and biochemistry were observed, indicating that the algae was well tolerated. Each increase in dose corresponded to a significantly higher DHA content for both the thigh and breast tissue (thigh: 4.6, 19.0, 32.7 and 50.7 mg /100 g; breast tissue: 4.4, 17.6, 31.7 and 47.9 mg DHA /100 g tissue for T1, T2, T3 and T4 respectively, $P<0.001$). These results indicate that supplementation with All-G-Rich™ for 21 days under floor pen conditions can enrich chicken breast and thigh meat with DHA in proportion to the level of supplementation, without negatively impacting productivity.

Key Words: Algae, Omega-3, DHA, Broiler

P280 Tolerance of broilers to diets supplemented with All-G-Rich™ Colm Moran*[1], Jason Keegan[2], Doug Currie[3], Anne Knox[3] *[1]Alltech SARL; [2]Alltech Inc; [3]Roslin Nutrition Ltd*

Omega-3 Fatty Acid (n-3 FA) rich microalgae can be sustainably produced heterotrophically and added to chicken diets to increase the n-3 FA content of chicken meat and eggs, improving the nutritional value of these products. The purpose of this study was to investigate the tolerance of broilers to supplementation with a docosahexaenoic acid (DHA) rich microalgae (*Aurantiochytrium limacinum*, CCAP 4087/2, All-G-Rich™, Alltech Inc) to ensure its safe use. Healthy day-old male Ross 308 chicks (n=1,120) were randomly allocated to one of four diets which were provided *ad libitum*. Algae was included as a percentage of the diet to provide a no algae control (T1=0%), algae at the authorised maximum level (T2=0.5%), and algae at 5 (T3=2.5%) and 10 times (T4=5%) the maximum authorised intake. The study was conducted in a house of 32 pens, providing 8 replicates for each treatment with 35 birds per pen. Body weight and the amount of feed consumed was measured per pen on days 0, 21 and 42. Mortality was recorded daily. On day 42, blood was taken from 1 bird per pen for haematological and biochemical analysis. Two birds from each pen were sacrificed and breast and thigh samples were taken for DHA content analysis. No significant differences were observed in terms of performance between the control and treatment groups. The results indicated that supplementation with algae was well tolerated by all treatment groups. Mortality was less than 5% and no significant differences in mortality were observed between the 4 groups ($P = 0.15$). In addition, no significant differences were observed between the groups in terms of blood haematology and biochemistry with the exception of cholesterol which was lower in the T4 than the T1 group (2.93 vs 3.69 nmol/l, $P = 0.02$), and glutathione peroxidase which was higher in the T4 than the T1 group (119.96 vs 95.33 u/ml RBC, $P = 0.02$). Each increase in dose corresponded to a significantly higher DHA content for both the thigh and breast tissue (thigh: 12.1, 34.4, 89.0 and 139.5 mg /100 g; breast: 14.1, 42.5, 114.5 and 179.8 mg DHA /100 g tissue for T1, T2, T3 and T4 respectively, $P<0.001$). These results indicate that supplementation with up to 10 times the maximum recommended dose of All-G-Rich™ is well tolerated by broilers.

Key Words: Algae, Omega-3, DHA, Broiler

P281 Effect of protected sodium butyrate in pullet performance Oscar Vazquez*[1], Monica Puyalto[2], Cinta Sol[2], Juan Mallo[2], Paulina Vazquez[3] *[1]Norel México S.A. De C.V.; [2]Norel S.a.; [3]Universidad Autonoma De Guerrero*

The effect of protected sodium butyrate was evaluated in a pullet rearing trial under field conditions. A total of 110,027 one-day-old pullets (Lohmann lsl-lite) were alloted in four poultry yards and randomly distributed to two treatments: standard diet with antibiotic growth promoters (AGPs: Bacitracin Methylene Disalicylate and Colistin at 55 and 125 g/t of feed respectively) (Control), and the Control diet with AGPs plus protected sodium butyrate (Gustor N´RGY) at 1 kg/t of feed (PSB). Pullets were fed with starter and grower diets based on corn-soybean meal and nutrient levels according to Lohmann manual recommendations. Enzymes and coccidiostats were included in both treatments. All data were analyzed by GLM procedure (SAS 9). Body weight gain (BWG), feed intake (FI), feed conversion ratio (FCR), flock uniformity (FU) and mortality were recorded at the end of the trial (15 weeks). There were no differences between treatments for BWG, FI and FCR at seven weeks. However, at 15 weeks PSB group tended to increase BWG (1060 vs 1080 g; $P=0.106$) by 20 g. Mortality was not affected ($P=0.406$) by butyrate inclusion in the diet. Nevertheless, FU was higher in PSB treatment (83.5% vs 90%; $P=0.049$). We can conclude that the inclusion of protected sodium butyrate at the doses used in this test allowed to achieve a better flock uniformity and tended to improve growth performance, even if AGPs were used in the diet.

Key Words: protected, sodium, butyrate, flock, uniformity