571 Prediction models of productive parameters and energy utilization due energy levels for young laying hens. P. A. P. Ribeiro*[1], J. B. Matos Junior[2], L. J. C. Lara[2], and N. C. Baiao[2], *[1]Universidade de Sao Paulo, Pirassununga, Sao Paulo, Brazil, [2]Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.*

The recommendations of energy levels for laying hens vary greatly between the strain manuals and also between strains manuals and tables of research institutions. The use of inadequate levels of energy can lead to productivity losses and low efficiency of energy use. To establish mathematical models for yield response of young laying hens to different levels of AMEn and evaluate the influence of energy levels on energy use by these birds, an experiment was conducted with 1200 Dekalb White hens, 23 to 40 weeks of age, housed in conventional cages. These birds were divided into 5 groups according to the level of dietary AMEn: A - 2700 kcal/kg, B - 2775 kcal/kg, C - 2850 kcal/kg, D - 2925 kcal/kg, and E - 3000 kcal/kg, with 6 replicates per group. The experimental design was randomized and data were submitted to polynomial regression. There was a linear decrease effect in egg production with increased levels of AMEn, being found the equation $y = -0.0183376x + 141.805$ ($R^2 = 0.85$). No significant effects of AMEn levels on egg weight, live weight of poultry and livability were found. The egg mass was influenced by levels of AMEn: $y = -0.012928x + 90.124850$ ($R^2 = 0.88$). The regression equation that best explains the effect on the levels of AMEn on feed intake is: $y = -0.033564x + 188.35559$ ($R^2 = 0.96$), there is no effect of AMEn levels on consumption of AMEn. The feed conversion was influenced by the levels of AMEn: $y = -0.000208x + 2.333480$ ($R^2 = 0.90$). The feed conversion per egg dozen was also influenced by levels of AMEn being the equation $y = -0.000196x + 1.801573$ ($R^2 = 0.87$) indicating a linear improvement in feed conversion per egg dozen with the increase of the levels of AMEn . With increasing levels of AMEn there is worsening in the efficiency of energy conversion: y = 0.001141x 1.703423 ($R^2 = 0.96$). There is a linear decrease in egg production and feed intake by young hens with the increase of AMEn levels from 2700 to 3000 kcal/kg, while the other productive parameters remain unaffected regardless of the level used. Therefore the level of 2700 kcal/kg diet can be recommended for young hens.

Key Words: energy, laying hens, models, requirements, eggs

572 Effects of feeding strategy, fiber source of the diet, and crude protein content on productive performance of broiler breeder hens. M. Mohiti-Asli[1], M. Shivazad[1], M. Zaghari[1], M. Rezaian[2], S. Aminzadeh[3], and G. G. Mateos*[4], *[1]Department of Animal Science, University of Tehran, Karaj, Iran, [2]Department of Veterinary Science, University of Tehran, Tehran, Iran, [3]National Institute of Genetic Engineering and Biotechnology, Tehran, Iran, [4]Departamento de Producción Animal, Universidad Politécnica de Madrid, Madrid, Spain.*

A 12-wk experiment was conducted to investigate the effect of feeding program, dietary fiber, and CP content of the diet on productive performance of Ross broiler breeder hens (41 wk of age). There were 12 treatments arranged factorially with 2 levels of CP (14.5 vs. 17.4%), 3 fiber sources (0 vs. 3% inulin vs. 3% cellulose), and 2 levels of feed intake (160 vs. 208 g/d) that corresponded to restricted (R) or ad libitum (AL) feeding systems. The experimental diets contained 2,800 kcal ME with either 0.65 (14.5% CP) or 0.78% Lys (17.4% CP). Treatments were replicated 4 or 5 times (a floor pen with 6 hens and one male). Egg weight, ADFI, and total number of eggs and second grade eggs were recorded daily. Shell thickness, proportion of egg components, and Haugh units were recorded in 2 eggs per replicate every 4 wks and BW of the hens every 2 wk. Percentage of hatched chicks, BW of newborn chicks, and the cause of infertility and the stage of embryonic mortality were determined by replicate in all the unhatched eggs. No interaction among main effects was detected for any trait. Dietary CP level did not affect any of the productive traits. At the end of the trial, BW of hens was higher for AL than for R hens (4,775 vs. 4,272; $P \leq 0.001$) and was reduced with fiber inclusion ($P \leq 0.01$), with effects being more noticeable with cellulose than with inulin. Feed intake decreased with fiber inclusion in the AL hens ($P \leq 0.05$). Egg production, egg mass ($P \leq 0.001$), and egg fertility ($P \leq 0.05$) decreased, but egg weight ($P \leq 0.001$), egg yolk, and BW of chicks at hatch ($P \leq 0.01$) increased with AL feeding. No difference in hatchability and hatch percentage of fertile eggs was detected among treatments. Egg production increased ($P \leq 0.05$) but egg weight was reduced ($P \leq 0.05$) with fiber inclusion in the diet, with the effects being more noticeable for cellulose than for inulin. The results suggest that the inclusion of 3% inulin or cellulose in the diet reduced ADFI and BW in AL hens, and improved productive performance in both AL and R broiler breeder hens.

Key Words: broiler breeder hens, crude protein, dietary fiber, performance

573 Fatty acids and cholesterol oxidized products in turkey breast meat with different ultimate pH. P. K. Hong*, I. V. Spevackova, and M. Betti, *University of Alberta, Edmonton, Canada.*

Pale, soft and exudative (PSE)-like meat is one of the main concerns in the poultry industry. It is characterized as pale and low ultimate pH meat with less water holding capacity (WHC). Conventional practices in sorting out PSE-meat rely on color and pH measurement as they are correlated with WHC. However, information on the fatty acids and cholesterol oxidized products (COP) in turkey meat are scarce. In this study, fatty acid profile and COP in turkey breast meat with different ultimate pH were investigated. Turkey breasts (16 pieces) from a local poultry processing plant at 24 h postmortem were screened and divided into 2 groups (Low pH (LpH): $L^* > 51$, pH <5.7; and, Normal pH (NpH): $46 < L^* < 51$, $5.9 <$ pH <6.0). All samples were minced and stored at −18°C until use. Total lipids in breast meats were extracted by the Folch method and were analyzed for total fatty acid content and COP content by gas chromatography detection. The data obtained were analyzed using independent *t*-test. Probabilities lower than 5% were considered significant. Total amount of extracted fatty acid in NpH and LpH were similar. However, fatty acid profile showed that LpH meat had lower levels of eicosanoic acid (20:0) ($P < 0.005$), arachidonic acid (20:4n-6) ($P = 0.05$), and long chain n-3 polyunsaturated fatty acids ($P < 0.05$), particularly in eicosapentaenoic acid (20:5n-3) ($P < 0.05$) and docosahexaenoic acid (22:6n-3) ($P < 0.05$) compared with NpH meat. A total of 5 COP were detected in both types of the turkey breast meat: 7a-hydroxycholesterol, 7b-hydroxycholesterol, cholesterol-5a,6a-epoxide, cholesterol-5b,6b-epoxide and 7-ketocholesterol. Low ultimate pH reduced the formation of each of the COP in turkey breast meat as they were found significantly lower than that of NpH. This could be explained by the lower unsaturation index ($P = 0.073$) and peroxidation index ($P < 0.05$) found in LpH meat than NpH meat. Despite the low pH, PSE-like turkey meat seems to be more stable to lipid oxidation than normal turkey breast meat at 24 h postmortem.