83 Chemical characteristics of soybean meals available in the European Union market: A 2015 survey. P. Guzmán, L. Cámara, P. García-Rebollar, R. Lázaro, and G. G. Mateos*, *Departamento de Producción Agraria, Universidad Politécnica de Madrid, Madrid, Spain.*

The aim of this research was to determine the chemical composition and nutritive value of soybean meals (SBM) from beans of different origins collected in the European Union in 2015. Based on a previous survey conducted from 2008 to 2014, we hypothesized that the SBM from the different countries could show differences in chemical composition, protein quality, and nutritional value. In total, 40 SBM samples from USA (n = 14), Brazil (BRA; n = 15), and Argentina (ARG; n = 11) were collected at random from 5 key feed compounders and analyzed for proximal components, minerals, sugars, fibers, amino acids (AA), and protein quality. SBM from BRA had more CP, CF, and NDF and less sucrose content than the SBM from the USA and ARG ($P < 0.001$). Raffinose content was lowest in USA SBM ($P < 0.001$). Calcium ($P < 0.01$) content was higher for the USA SBM than for the ARG and BRA SBM whereas P level was higher ($P < 0.001$) in SBM from ARG than in SBM from USA or BRA. In general, the profile (% CP) in indispensable AA was better for the USA meals than for the BRA meals, with ARG meals being intermediate. In fact, Lys ($P < 0.01$), Met ($P < 0.001$), Cys ($P < 0.001$), and Trp ($P < 0.01$) contents per unit of CP were higher in USA and ARG SBM than in BRA SBM. Moreover, PDI ($P < 0.001$) and KOH solubility ($P < 0.001$) values were higher and heat damage index ($P < 0.001$) and urease activity ($P < 0.01$) were lower in the USA meals than in the ARG and BRA meals. However, no differences among origins were detected for TIA. In general, the data of the present annual survey are in agreement with data reported in a previous research conducted in Europe from 2008 to 2014, involving 515 SBM samples. In conclusion, in isoproteic SBM samples, protein quality indicators, levels of fiber and sucrose, and AA profile, favor the use of USA meals in poultry feeding. The origin of the meals should be specified in feed tables for accurate and precise formulation of poultry diets.

Key Words: bean origin, chemical analysis, soybean meal

84 Feeding program and pelleting affects broiler performance. Vinícius Gonsales Schramm*[1], Andréia Massuquetto[1], Jean Fagner Durau[1], Josiane Carla Panisson[1], Vivian Izabel Vieira[1], Diego Surek[2], Everton Luís Krabbe[2], and Alex Maiorka[1], *[1]Federal University of Paraná, Curitiba, Paraná, Brazil, [2]Embrapa Suínos e Aves, Concórdia, Santa Catarina, Brazil.*

The objective of the present study was to evaluate the effects of feeding program and feed processing on performance of growth broilers. Male Cobb500 broilers (768) from 21 to 35 d of age were distributed in a completely randomized design with 6 treatments and 8 replicates of 16 birds each. Treatments consisted of mash diet provided ad libitum (control), pellet ad libitum or provided according to different feed programs (100, 95, 90 and 85% of the amount consumed by the control treatment). Broilers were fed the same diets until 16 d of age and after 4 d of adaptation started to intake the experimental diets with 21 d of age. Feed intake (FI), body weight gain (BWG) and feed conversion ratio (FCR) corrected for the weight of dead birds were determined. Data were submitted to ANOVA and the means were compared by the Dunnett test at 5% probability using mash as control. For pellet diets provided 100, 95, 90 and 85% of control were performed regression analysis. Broilers fed pellet diet ad libitum had greater FI and BWG ($P < 0.01$) than control treatment. When there was restriction of consumption, birds fed pellet had lower BWG ($P < 0.01$) than control. Regarding FCR, there was difference only between the pellet diet ad libitum and control. For pellet diets using different feeding programs, as the feed restriction increased, BWG decreased linearly ($P < 0.01$; Table 1). Therefore, pellet diets improve broiler performance. Feed restriction affected BWG but not FCR.

Table 1. Feed program and processing on growth broiler performance

Treatment	Feed intake (g)	BW gain (g)[1]	Feed conversion ratio (g/g)
Mash (control)	1,902	1,240	1,532
Pellet ad libitum	2,108*	1,447*	1,442*
P100% of control	1,900	1,231	1,545
P95% of control	1,805*	1,191*	1,516
P90% of control	1,710*	1,132*	1,510
P85% of control	1,615*	1,067*	1,511
P-value	<0.0001	<0.0001	<0.0001
CV	9.089	10.234	3.066

*Differed from control ($P < 0.05$) by Dunnett's test.

[1]Linear effect for the different feed programs ($P < 0.01$); $y = 0.0121x + 0.0395$; $R^2 = 0.9996$.

Key Words: bird, feed intake, feed restriction, pellet, processing

85 Withdrawn

86 Withdrawn

87 Proteomic characterization and the nutritive potential of hatchery egg shell membrane. Narayan C. Rath*[1], Rohana Liyanage[2], Sarbjeet K. Makkar[3], and Jackson O. Lay Jr.[2], *[1]USDA-ARS, Fayetteville, AR, [2]Statewide Mass Spectrometry Facility, University of Arkansas, Fayetteville, AR, [3]Department of Poultry Science, University of Arkansas, Fayetteville, AR.*

Egg shells constitute a significant part of hatchery waste, largely comprising of calcareous shells, membranes, and microbial contaminants. Based on proteomic analyses of egg shell membranes and their beneficial effect as nutritional supplement of poultry diet, we were interested to explore the protein constituents of hatchery egg shell membrane (HESM) for its potential use as feed supplement. The hatchery waste egg shells were dried and the membranes were pulverized using a mill. The membrane powders were subjected to extraction by 2 methods: (a) acidified aqueous methanol used to extract the peptides and small protein fragments then identified by matrix assisted laser desorption ionization time of flight (MALDI-TOF) mass spectrometry and liquid chromatography-tandem mass spectrometry (LC-MS/MS) and (b) by extraction with a 4 *M* guanidine hydrochloride buffer, a chaotropic extractant, to identify rest of the soluble proteins. Both extracts were dialyzed through 1-kDa membrane against ammonium bicarbonate and subjected to reduction and alkylation followed by in solution digestion with trypsin followed by mass spectrometry. The results from 2 separate replicate analyses