

**252 Effect of a serine protease on the energy content of soybean meals of different origins in 22-d-old broilers.** L. Cámara<sup>1,2</sup>, M. V. Kimiaicitalab<sup>1</sup>, B. Saldaña<sup>1</sup>, H. M. Mandalawi<sup>1</sup>, R. C. Angel<sup>3</sup>, A. Smith<sup>4</sup>, and G. G. Mateos<sup>\*1,2</sup>, <sup>1</sup>Departamento de Producción Agraria, Universidad Politécnica de Madrid, Madrid, Spain, <sup>2</sup>CEI Campus Moncloa, UCM-UPM, Madrid, Spain, <sup>3</sup>Department of Animal Science, University of Maryland, College Park, MD, <sup>4</sup>DSM Nutritional Products (UK) Ltd., Heanor, Derbyshire, UK.

A total of 1,152 one-day-old straight-run Ross 308 broilers were used to study the effect of using a mono component serine protease (PRO; Ronozyme ProAct, DSM Nutritional Products) on the AMEn of soybean meals (SBM) from USA, Brazil (BRA), and Argentina (ARG). The design was a 3 × 2 factorial arrangement of 3 SBM of different origin (USA, BRA, and ARG) and 2 levels of PRO (0 and 200 mg/kg to give 0 to 15,000 PROT units/kg feed) resulting in 6 treatments. Each of the 6 treatments was replicated 24 times and the experimental unit was a cage with 8 broilers. Birds were fed a commercial corn-soybean meal diet from 1 to 18 d of age followed by the experimental diets that resulted from the combination of 42.6% SBM and 57.4% of a nitrogen free diet to 22 d of age. The AMEn of the diet was 1.4% and 3.8% higher in chicks fed USA SBM than in chicks fed BRA or ARG SBM (2,921 vs. 2,880 vs. 2,814 kcal/kg, respectively;  $P < 0.001$ ). PRO supplementation increased the AMEn of the diet by an average of 1.1% (2,888 vs. 2,856 kcal/kg;  $P < 0.001$ ). An interaction between SBM origin and protease supplementation was detected ( $P < 0.01$ ); addition of PRO increased AMEn diet with USA or ARG SBM but not those with BRA SBM. In conclusion, AMEn of the diet based on USA SBM was higher than that of diets with BRA SBM, and was lowest for diets with ARG SBM ARG meals. PRO supplementation increased the AMEn of diets, an improvement that varied depending on the origin of the SBM.

**Key Words:** AMEn, broiler, protease, soybean meal origin

**253 Evaluation of a thermostable xylanase dose response in broilers fed corn soybean meal-based diets.** Fenglan Yan<sup>\*1</sup>, Mercedes Vazquez-Anon<sup>1</sup>, and Jonny Lyon<sup>2</sup>, <sup>1</sup>Novus International Inc., St. Charles, MO, <sup>2</sup>Verenium Corporation, San Diego CA.

A floor pen trial was conducted to evaluate dose response of a newly developed hyper-thermostable xylanase (Cibenza Xylaverse, Novus International Inc.) in broilers fed corn soy based diets. A 3-phase feeding program was employed: starter (0–18 d), grower (18–35 d), and finisher (35–44 d) phases. Diets were in pellet form except starter diets, which were crumbled after pelleting. The study consisted of 9 dietary treatments – positive control, negative control (NC) with 100 kcal/kg less ME, test xylanase added to NC at 125, 250, 500, 1000, 2000 U/kg, or at variable doses for different phases (250, 1000, and 2000 U/kg for starter, grower, and finisher), and a commercial xylanase added to NC at 100 g/ton. Each treatment had 8 replicate pens of 22 male broilers. Body weight, feed intake, FCR, and mortality were determined at 18, 35, and 42 d. On d 16, one bird per pen was killed to measure proventriculus, gizzard, pancreas, gizzard content, and ceca content weight. Carcass parameters were obtained on d 44 from 5 birds per pen. Data were analyzed with one way ANOVA and a  $P$ -value  $\leq 0.05$  was considered significantly different. Body weight was not affected by treatment throughout the trial. Reduction of ME by 100 kcal/kg increased FCR by 3.8 points at d 35 and by 4.4 points at d 42. All xylanase supplemented groups returned numerically better FCR on d 35 and 42, but only test xylanase at 250 U/kg significantly improved FCR (1.568 vs 1.594 on d 35; 1.709 vs 1.732 on d 42). Broilers fed 100 kcal/kg less ME consumed 74 g (2.7%) and 81 g (5.5%) more feed for 18–35 d and 35–42 d; test xylanase at 250 U/kg reduced 18–35 d feed intake by 69 g (2.5%). A

reduction of 100 kcal/kg ME was associated with a higher dressing percentage, and xylanase effect on processing traits was not consistent. Test xylanase at 125 and 250 U/kg increased broiler ceca content by 87% and 107% respectively. In summary, the study demonstrated that the effect of the newly developed xylanase in broilers fed corn soy based diets was dose dependent and the moderate dose (250 U/kg) modified hind gut fermentation and improved FCR.

**Key Words:** thermostable xylanase, broiler, growth performance, dose response

**254 Benefits of protease addition on top of a commercial young laying hen diet.** Ludovic Lahaye\*, Kathleen Sary, Derek Detzler, and Jean-Christophe Bodin, Jefe Nutrition Inc., Saint-Hyacinthe, QC, Canada.

Constant genetic improvements are extending production boundaries. Nutritionists are in continuous search of novel approaches to optimize diet formulations juggling between costs and answering nutritional demands of high performance birds. The objective of the current study was to evaluate the effect of supplementation of a single protease enzyme: Poultrygrow 250 (PTG) on top of a commercial corn/soy diet formulated for laying hens at start. This study was conducted for 7 weeks with 112 White Lohman pullets aged 20 weeks at start of the trial. Pullets were evenly distributed in 28 cages with 4 birds per cage respecting Canadian density standards. Cages were allocated 1 of the 2 groups: (1) control diet (CD): a diet formulated with AME of 2825 kcal/kg, CP of 18.5% and total lysine content of 0.884%; and (2) protease diet (PTD), which was CD supplemented with 125 ppm PTG on top. Weeks 1 and 2 were buffer weeks to allow pullets to acclimate and all pullets received the control diet. At wk 3, supplementation with Poultrygrow 250 was initiated in diet of pullets allocated to this group up to wk 7. Zootechnical performances (laying rate, egg weight, and feed consumption) were recorded daily and compiled weekly. Data were analyzed by ANOVA with a  $P$ -value of 0.05 to determine the level of significance and separated using Fisher's least significant difference test (NCSS software). During first 2 wk, when both groups received the control diet, performance of layers in group CD was numerically better than that in group PTD. Supplementation of control diet with PTG (PTD group) resulted in better laying rate, egg mass, and feed conversion from wk 3. PTD group feed conversion ratios were significantly improved over CD group at wk 4 ( $P < 0.05$ ) and egg mass was significantly increase when compared with CD group at wk 6 and 7. In conclusion, addition of Poultrygrow 250 on top of a commercial laying hen diet has the potential to improve egg production parameters and offer a viable solution in diet formulation optimization.

**Key Words:** protease, enzyme, Poultrygrow 250, laying hen

**255 Effect of the addition of a carbohydrase complex on performance and amino acids deposition of broiler chickens fed wheat-soybean-based diets.** Roberto Montanhini Neto\* and Aurélie Preynat, Centre of Expertise and Research in Nutrition, Adisseo France SAS, Malicorne, France.

The objective of this study was to evaluate the effect of the addition of a carbohydrase complex (CC) on the performance and nutrient deposition of broiler chickens fed wheat-soybean-based diets. Six control diets were formulated with different digestible amino acids (DAA) content (–7.5%, –5.0%, –2.5%, 0.0%, +2.5%, and +5.0%) based on commercial recommendations, but with the same ideal protein profile. Six treatment diets were prepared by adding CC (Rovabio Advance L) to the 6 control diets reduced in energy (85 kcal kg<sup>-1</sup> or 2.8% of average energy reduction) to