

The following Syncra® AVI related abstracts were presented at The Poultry Science Association 102nd annual meeting, held in San Diego, California, 22-25th July 2013. Abstracts have been published in Poultry Science Vol. 92 (E-suppl. 1) 2013 Poultry Science Association Annual Meeting Abstracts (<http://www.poultryscience.org/psa13/abstracts/toc.htm>).

245 Influence of combinations of a direct-fed microbial and exogenous enzymes on the growth performance and feed efficiency of broilers. M. C. Walsh*¹, L. F. Romero¹, S. E. Indrakumar¹, and V. Ravindran², ¹Danisco Animal Nutrition–DuPont Industrial Biosciences, Marlborough, United Kingdom, ²Massey University, Palmerston North, New Zealand.

A 42-d performance trial using 792 Ross 308 chicks was conducted to assess the effects of exogenous xylanase and amylase carbohydrases and protease in combination with a *Bacillus subtilis* direct fed microbial (DFM) on the growth and feed efficiency of broiler chickens. Day old chicks were administered a live coccidiosis vaccine via drinking water and assigned to one of 6 treatments with 6 replicate pens in a randomized block design. A3x2 factorial arrangement of treatments was used. Three enzyme levels were: no enzyme, xylanase from *Trichoderma reesei* and amylase from *Bacillus licheniformis* (XA), or XA plus a protease from *B. subtilis* (XAP). Two levels of DFM were: no DFM, or a combination of spores from 3 strains of *B. subtilis* applied at 7.5×10^4 cfu/g of feed. Diets were based on corn, soybean meal, corn DDGS (7%), and wheat middlings (7–10%). Body weight (BW) gain, feed conversion ratio (FCR) and feed intake (FI) were measured weekly until 42 d. Data were analyzed through ANOVA. An interaction between enzymes and DFM was evident for BW gain to 42 d ($P < 0.05$). All the treatments containing DFMs had greater BW gain compared with the negative control (NC; no enzymes or DFMs) at 42 d. XAP alone increased BW gain compared with the NC diet ($P < 0.05$), but XA did not. The DFM exhibited an increase in BW gain of chickens from wk 1 onwards versus treatments without DFM (144 vs. 131 g), whereas XAP increased BW gain compared with the NC only after 28 d. DFM increased FI until 28 d, while neither XA nor XAP exhibited main effects on FI. Nonetheless, both XA and XAP reduced FCR from 28 d ($P < 0.05$), and only XAP reduced FCR from 0 to 42 d as a main effect ($P < 0.05$). DFM did not affect FCR and no interactions on FCR were present. DFMs increased feed intake and growth of young chickens, presumably due to effects on the gut health status, whereas enzymes increased feed efficiency, particularly in older broilers.

Key Words: broiler, enzyme, performance, *Bacillus*, direct fed microbial

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