**NUTRIENT CONCENTRATION AND PROTECTED SODIUM BUTYRATE EFFECT ON BROILER CHICKENS PERFORMANCE, A META-ANALYSIS**

J.J. Mallo1,2, C. Sol1, M. Puyalto1 and M.J. Villamide2

1 NOREL S.A., Madrid, Spain

2 U.P.M., Madrid, Spain

Four trials were run to evaluate the effect of nutrient concentration and additive addition (sodium butyrate protected with sodium salts of palm fatty acid distillates, PSB) on animal performance. Dietary treatments were diets with up to 3 different nutrient levels (Control diet, C, with recommended ME and ideal AA composition; Reduction 1, R1, C reducing 60 kcal ME and 2.6% AA and Reduction 2, R2, C reducing 120 kcal ME and 5.2% AA), with or without PSB, at 1kg/tn of feed. In trials 1 and 2, 20 pens of 10 one day old Cobb broilers were used in a 2 x 2 factorial design. Trial 3 used 6 pens of 7 birds per treatment in a 2 x 3 factorial design. Trial 4 used 8 pens of 46 birds in a 2 x 3 design. All trials lasted 42 days. There were no interactions between additive inclusion and nutrient level. The nutrient level influenced FBW (g) (C 2292a, R1 2279a, R2 2134b; P<0.01), ADG (g/d) (53.48a, 53.20a, 50.09b; P<0.01) and FCR (1.62a, 1.64a and 1.72b; P<0.01). The addition of PSB tended to increase ADG (52.86 vs 51.67; P<0.12) and ADFI (g/d) (87.22 vs 85.43; P<0.12) without affecting FCR (1.66 vs 1.66; P>0.9). Nutrient concentration affects animal growth and FCR. Protected sodium butyrate may increase animal growth and feed intake without worsening FCR under different nutrient circumstances.

**Key Words:** Meta-analysis, nutrients, butyrates, amino-acid